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INFORMATION AND KNOWLEDGE IN COMPETITIVE STRATEGIZING: TOWARDS AN INVOLVED PERSPECTIVE

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ABSTRACT

Current research indicates that global companies still struggle in integrating managerial know-how well. The academic literature addresses the importance of information technologies (ITs) and socio-cultural aspects in organizations. This research looks at the managerial level to explore the ways in which executives leverage management information and knowledge in strategizing activities with regards to information systems (IS). Two problems are identified: first, a predominant view on IS as ITs, and as separate entities from strategizing with a typical response being a call for 'strategic alignment'; second, a predominant rational view on the manager.

Based on two qualitative case studies, the IS strategizing framework (Galliers & Newell 2003) will serve the sense-making process with specific consideration given to exploration and exploitation strategies, and socio-technical elements of an information infrastructure (II). Interpretivism and the hermeneutic circle guide the analysis of empirical findings from interviews and observation.

Key findings reveal the prevalence of subsystems among senior managers with the ambidextrous use of deliberate and emergent IS to achieve efficiency and flexibility (Galliers 2007). The ontological assumptions of the 'involved manager' (Introna 1997) are used to explain the prevalence of subsystems and reveal attributes of ambidextrous managers (O'Reilly & Tushman 2004). The study implies that IS and strategic actors' involved mindsets are immanent to the strategizing process. Secondary findings show organizational implications of managerial subsystems to lead to widening cross-cultural gaps and political tensions. The study suggests conceptualizing IS as immanent to managerial knowledge work processes with deeper consideration to the human agent as the involved manager.

Enhancements to the framework are proposed to include the ontological assumptions of the involved manager, which explain the use of IS as a result of an already involved IS mindset of the ambidextrous manager. Further research is suggested to test the findings across various cultural and organizational contexts.

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CHAPTER 1 INTRODUCTION

*This chapter introduces the dissertation by providing a
background on the problem domain in theory and practice. It
outlines the research design and states the objectives.*

1 INTRODUCTION

This research investigates the ways in which senior managers at two global companies leverage information and knowledge in competitive strategizing. In this context, Galliers and Newell's (2003) IS strategizing framework is used in two case studies to explore the role of information systems (IS) in achieving efficiency and flexibility in strategizing. The thesis argues that the strategic information systems (SIS) literature tends to underplay the situated involvement of strategic actors in how IS may be leveraged. This under-researched element significantly influences the dynamics of a number of other factors, which affect how IS are leveraged in strategizing. To this end, supporting theories on human agency are considered with a view to contributing to a richer understanding of the relationship between actors and IS in competitive strategizing. Furthermore, the study sheds light on how managerial and organizational contexts reinforce one another in the shaping of unintended consequences. First, this chapter provides a background to the problem domain in practice and highlights relevant debates in the current literature. The research objective and design are then presented. The final section outlines the expected contributions and the structure of this thesis.

1.1 RESEARCH MOTIVATION AND SCOPE

This research stems from the intellectual curiosity to explore how experienced managers in global organizations leverage information and knowledge in strategizing processes. This subject has been under ongoing debate across multiple disciplines, e.g. strategic management, organizational theory and information systems (IS) (Sabherwal & Chan 2001; Hoskisson et al 1999; Porter & Millar 1985; McFarlan 1984; Wiseman 1985; Venkatraman et al 1993; Weick 1995; Wernerfelt 1984; Barney 1991; Davenport & Prusak 1989; Mintzberg 1978; Argyris & Schon 1978; Walsham 1993; Earl 1989; Galliers 1991; Galliers & Sutherland 1991; Ciborra 1994). There are, however, several shortcomings in the literature and a multitude of practical challenges concerning the role of IS in strategizing. The IS literature tends to propose ways to exploit the value of IT as a strategic opportunity to create competitive advantage (e.g., Porter & Millar 1985). This tendency depends on the conceptualization of IS, which affects how IS are used in business strategizing. Generally, there has been a gap in perspectives between academic literature and practitioners in how IS may serve managers in strategizing. Despite advancements in ICTs and the pool of available literature, practitioners criticize IT as providing 'cookie-cutter' solutions, and the literature as being 'too theoretical' in assisting in the solution of their problems.

There appears therefore to be an opportunity to re-examine such challenges in the real world. A journey through the literature and a preliminary investigation revealed the need for research from different perspectives. A major challenge has been to translate the many concerns from the boundary-less practice into conceptually distinct domains in the literature. This thesis attempts to provide a richer understanding of some of the real world problems on solid conceptual grounds. As a result, it is hoped to encourage different thinking and bring practitioners closer to possible solutions. So, some key questions include:

- Given the advancements in ICTs and the growing uncertainties of competitive environments, how much do IS influence the jobs of top managers?

More specifically:

- How much are top managers, or key decision makers, able to influence the usefulness of systems in leveraging information and knowledge in their particular context?
- How much do decision makers include centrally available IS in their practice-based strategizing?

- Are companies, which provide their top managers with management IS (MIS) and ICTs able to compete more effectively and efficiently compared to those that do not have them?

These questions will be unfolded into key concepts IS, human agents and strategizing, where their dynamic relationships will be explored from competing perspectives. The key concepts will be defined and discussed in the literature review chapters (chapters 2 and 3), and then brought together into a cohesive and integrative framework in chapter 4. The framework will be applied across two companies in practice to gather new insights.

The general scope of competitive strategizing in this research is well represented by the resource-based view (RBV) of the firm (Wernerfelt 1984), which argues that competitive advantage (Teece et al 1997) may be created through path-dependent internal processes on the organizational, managerial and technological levels. Here, what determines sustainability of competitive advantage stems from the dynamic nature of firms' core competencies (Lei et al 1996) and strategic flexibility (Hitt et al 1998; Sanchez & Heene 1997). The assumptions behind many of the arguments in this thesis stem from the knowledge-based-view (KBV) of the firm (Grant 1996; Spender & Grant 1996), which conceptualizes firms as heterogeneous and bearers of tacit, social and path-dependent knowledge (Kogut & Zander 1992). This tacitness and social complexity is an important determinant of a firm's competitive advantage, since knowledge is seen as transient and a core ingredient of ongoing learning and innovation (Nonaka 1994; Nonaka & Takeuchi 1995). Specifically, this tacit dimension of knowledge (Polanyi 1966) has made the study of strategy and IS complex. Tacit knowledge is linked to personal knowledge (ibid). Thus, a central and intrinsic argument in this thesis is Polanyi's assertion that 'we know more than we can tell' (Polanyi 1966: 4). Information and knowledge are seen as distinct constructs, since there is always a certain level of interpretive ambiguity due to specific contexts and individual perspectives (i.e. Zack 1998). Therefore, knowledge-based thinking is argued to be important for understanding a number of central topics in the strategizing process.

Furthermore, the research concerns the interaction between managerial and organizational levels, viewing them as overarching and mutually reinforcing. The organizational level concerns the firm's information and knowledge platform embedded within socio-technical structures and processes. The managerial level concerns managerial use of IS and focuses on more micro-level knowledge work processes (Mintzberg 2000; Wilson 2003).

Section 1.2.1 outlines the definitions on the key terms, whose underlying assumptions are discussed in more detail in chapters 2 and 3. Chapter 2 discusses the assumptions taken on strategizing, management information, and knowledge in this research. Chapter 3 reviews the literature on IS and wider organizational consequences of the use of IS in organizations. The 'use' of information and knowledge through IS includes the gathering, creation, sharing and transfer thereof. A holistic view is taken, where IS may or may not include information technologies (IT). Chapter 3 also reviews socio-technical elements of information infrastructures (IIs), which facilitate an enabling context for strategizing. Notably, while appreciating the conceptual distinctions of information and knowledge, they will be used interchangeably to refer to the kinds of information and knowledge managers use in their strategizing context.

1.1.1 Problem Domain – The Practice

The job of top managers has become increasingly uncertain. According to Beck (2000), uncertainties and challenges have always existed, yet they have changed form and intensity. For example, the elements of managers' work that may be exposed to risks and hazards have widened, requiring these executives to be more prepared to respond to a wide array of uncertainties and unintended consequences while having to meet conflicting demands. The struggle is exacerbated where local demand and global visions intersect and require a platform for efficient knowledge transfer and responsiveness (Grant 1996; Subramaniam & Venkatraman 2001). Organizational collaborate arrangements have been put in place to reduce uncertainties and pressures and enable greater speed and transparency. On the supply side, in an attempt to capitalize on this need, ICT provides tools to facilitate decision making and global collaboration.

The broader research motivation stems from the question: How do senior managers juggle conflicting demands posed by internal corporate environments and by external competition in their everyday strategizing? More specifically, what is the role of IS therein? To what extent are IS used, in what form and ways? The literature emphasize the strategic importance of IS to multinational corporations (Matsumoto & Wilson 2004), for example to support the transfer of knowledge and expertise, global efficiency and local responsiveness (ibid.). Specifically, the SIS literature argues that IS considers the choice of system applications to be delivered to the business (Orlikowski 1996), whereby IT represents the choice of technical platform that delivers system applications. While some

institutions have already developed a global IS, others have been less agile (Matsumoto & Wilson 2004).

At the same time, managers tend either to be skeptical in adopting ICTs in strategy, or they embrace them, but then gradually drift away towards more informal means to organizing management information (Land 1991). The consequences of such drift are not to be neglected on the organizational level. Assuming they drift from formal systems towards other informal means (ibid.), which cannot be centrally controlled and monitored, the managerial know-how remains hidden from the organization as a whole or gets lost when individuals leave. Thus, with increased mobility of knowledge workers and low retention levels, there are challenges in building cohesive organizational learning and memory (Walsh & Ungson 1991). In this context, many organizations adopt even more IS to address particular issues (Matsumoto & Wilson 2004). Hence, sophisticated structures of information processing and communication mechanisms have been suggested and commercialized to alleviate the problems of knowledge dispersion and potential loss (Boland & Tenkasi 1995). However, the strategic applicability of ICTs has faced controversies in terms of efficiency and flexibility. When corporations integrate business processes with external partners, suppliers and customers, unforeseeable demands have to be considered that are difficult to control. Business units require ICT to deliver services with the flexibility to accommodate unforeseen circumstances. Hence, the strategizing jobs of managers face increasingly conflicting elements, such as in achieving economies of scale through centralization while remaining responsive to business needs (Gupta 1987).

Overall, despite advancements in ICTs, organizations still struggle with leveraging IS (Weill & Broadbent 1998; Sauer & Willcocks 2002; Tinaikar 2006). This is the point of departure to refer to some examples from the preliminary investigation conducted during the earlier stages of this research to examine the scope of the problem domain in practice.

Preliminary Investigation

Due to the broad nature of the topic, it is appropriate to present three real case scenarios from practice as an opening case for this investigation. As part of a preliminary research, the researcher held a number of conversations with experienced managers and conducted a series of semi-structured interviews with senior managers in companies with global presence (see Appendix for a list of the companies). The section below presents a series of concerns that the individuals expressed. Due to the limited space, the most relevant

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comments are selected as an opening case for further investigation that follows in this study. The comments come from two consultants at a global strategy consulting firm, several top managers at a global IT and Engineering Firm, and a director of the Human Resources division at a global Petrochemical Company.

Problem scenario 1: strategizing activities and IS

Strategy consultants had an interest in better understanding the IS needs of strategizers in their everyday decision-making across various industries and cultures. While the IT industry offers many 'solutions', the consultants were well aware of the managers' frustrations with these applications. The consultants wanted more solid academic research. They saw a wide gap between research which is seen as 'too academic' and the 'cookie-cutter solutions' provided in the commercial sphere. .

Contributions from these discussions include how managers in two different cultures use IS in competitive strategizing. New insights may also be gained by combining perspectives from recent business management literature with appropriate philosophical underpinnings. Attention will be given to the socio-technical organizational context and how managers from German and US operating units operate in this system.

Problem scenario 2: Knowledge sharing and transfer for ongoing learning

A key concern of an HR director at a global petrochemical company was to find a way to foster '*continued development and distribution of tacit knowledge within and between teams*' and to find means for the organization to capture the '*collective tacit knowledge of the team as a whole*' in decision making processes. Few efforts have been made in the literature to examine the influence of organizational mechanisms on knowledge sharing within multi-national companies (Foss & Pedersen 2002). Traditional ways of transferring knowledge have been rotations of knowledge workers, exchange and training programs. But knowledge transfer poses a continuous challenge, the more so in attempting to harness IS as a component of firms' core capabilities.

This scenario is considered because it is linked to the managerial level concern from scenario 1. Contributions may relate to how managerial knowledge may be shared and transferred through an enabling context.

Problem scenario 3: Environments of constant change

At the IT and engineering firm, conversations were held with executives whose responsibilities were within the scope of business development. Decisions involved how to

allocate resources throughout the global offices. Surprisingly, none of the interviewees showed interest in utilizing IS tool or knowledge management systems. They showed scepticism towards most commercialized ICTs. They seemed rather burdened by the monetary and time investment. The board of executives was undergoing political challenges, which may have affected their perceptions towards IS. One member of the strategy team emphasized that IT systems may provide useful tools on the operational level with predictable nature of work. However, not so much to the task of devising strategies and making decisions in environments with uncertain elements: 'the problem is that I don't know what I don't know' (strategy team member) – if one does not know what he needs to know, then systems, regardless of their sophistication, may not be able to be leveraged. Hence, weaknesses are not always on the part of systems, but also on the side of the human agents and the contextual requirements.

Contributions may spring from a closer examination of the use of IS as an embedded part of managers' strategizing work as opposed to a study of IS and strategy in vacuum. The role of personal knowledge is emphasized.

The overall concerns were non-ICT related. Most interviewees believed that the IT industry is competitive enough to provide them with a wide range of options. The most frequent questions: 'How do I find out what I do not know?', and 'how can I know more of that which is not known to everyone else?' A major dilemma in all cases has been coping with the daily emergence of challenges from external changes and organizational politics that affect information interpretation, sense-making and attitudes towards decisions. It is argued that these have a strong influence on what choices are made and what is given priority (Wilson 2003). On the one hand, environmental changes and emergence of new demands raise issues that require flexibility and responsiveness of IS (Brynjolfsson & Hitt 2000; Hitt et al 1998). On the other hand, in order to maintain control over the course of decisions, top-down IS are used to monitor progress, measure performance, and maintain authority. A continuous challenge has been to put an order, a structure, or a system around tacit knowledge while conforming to top-down impositions of organizational II. While top-own corporate-driven coordination systems may provide a supportive platform, they are also seen as vehicles to reinforce centralized surveillance.

The above arguments encouraged the researcher to follow up on the topic more rigorously. Of course, these questions cannot be fully answered, but academic research can usefully inform the debate. Furthermore, there is an interesting connection behind the three

scenarios, which may be explored in a way as to addressing the underpinnings of the problem scenarios. The following questions arise:

- How do managers leverage IS in their strategizing activities in terms of exploitation and/or exploration strategies?

- Are corporate IS and personal knowledge perceived as 'aligned', 'embedded', or 'integrated' (as each introduces different assumptions)?

- How are corporate infrastructures organized/designed to support strategizing activities, and are they perceived as being supportive at all?

The general scope of research is illustrated below:
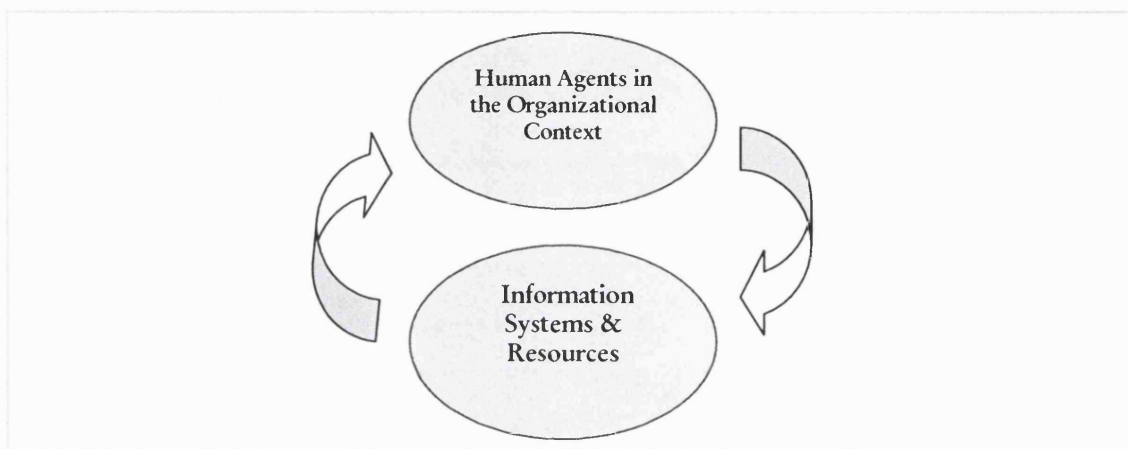
Figure 1.1: General scope of the research: Human agents in the organizational context and IS resources re-enforcing interaction

This research attempts to introduce a new perspective to an established debate by:

- Taking a neutral view on strategizing, IS, and the human agent; in other words, to be open as to deliberate versus emergent strategies, not to conceive IS as 'SIS', and not to confine ourselves to viewing strategizers as rational decision-makers.

- Choosing a theoretical framework, which allows the flexibility to explore the dynamic interaction among IS and strategizing activities; and to account for those elements in the strategizing process that have an effect on decisions, i.e. emerging unintended consequences

- Choosing a research methodology that keeps a critical eye on the interview data collected instead of accepting it as the 'truth'.

Before embarking on the research design, a brief overview of how the literature has been addressing the problem domain.

1.1.2 Problem Domain – The Literature

The problem domain has been well-documented in the IS literature in terms of strategic alignment of organizations' systems and IT with business strategies for some two decades (Earl 1989; Henderson & Venkatraman 1991). An important component in competitive strategizing has been argued to be having efficient and effective global communications to exhibit responsiveness to markets, transfer of learning, and managing change (Bartlett & Ghoshal 1989). The importance of information sharing to business strategizing success has been addressed (Lee & Whang 2000) along the lines of creating a flexible information infrastructure (II) to guide workers in new competitive environments (Porter & Millar 1985; Powell et al 2004; Galliers 1993). The role of an enabling II has been suggested to help knowledge workers through decision-making processes and implement their business strategies (Alavi & Leidner 1999; Galliers 2004).

Creating a 'strategic alignment' between a firms' IS and business strategy is well argued and critiqued in the literature (Galliers & Newell 2003, Ciborra 2000, Earl 1996). The term is also known as 'integration' (Weill & Broadbent 1998), a 'bridge' (Ciborra 1997), 'linkage' (Henderson & Venkatraman 1989), to name a few. According to Cross (2000: 36):

> Information and communication technologies are driving managers to rethink and reshape their business strategies, their use of technology, relations with suppliers and customers. The convergence of new technological hypercompetitive markets and 'heat-seeking' financial and human capital that quickly lead to new and untested business models now threatens a number of traditional business and processes.

Despite the widespread acceptance of business and IT alignment concept, it is not adequately clarified in literature. There have been problems in terms of underlying assumptions of strategic alignment on theoretical and methodological grounds (Hackney et al. 2000). The first problem starts with strategy itself. The ambiguous nature of the strategy process itself makes it difficult to study. The process of strategy is conceived as emergent (Mintzberg & Waters 1985) and continually changing (Pettigrew 1985, Hamel 1996). This emergent nature introduces a host of unintended consequences (Robey & Boudreau 1999) that cannot be accounted for. These arise as a result of organizational dynamics and turbulent external environments. The tradition of strategic alignment is in the design school (Chandler 1962; Ansoff 1965; Porter 1980), which takes a positivist and rational view of strategy.

Furthermore, it is argued that although there are some examples of enablers and inhibitors of alignment (Luftman 1996; Burn 1993), there is little about the impacts of misalignment on the firm (Avison et al. 2004). There is literature that asserts that IS alignment is not the real issue because IS are pervasive in business and should not be regarded as separable from business strategy (Smaczny 2001). Smaczny uses the term 'fusion' to describe the integration of IS and business strategies. Advocates to strategic alignment assume that IIs can be deliberately aligned with the emerging needs of management (Maes 1999; Ciborra 1997; Galliers & Newell 2003). For these reasons, the concept has even been argued to be inexpedient (Maes 1999). Smaczny (2001) claims that there are no studies showing how organizations actually achieve alignment and even goes as far as questioning whether alignment is the right way to look at the issue. Critics argue that modes of alignment assume organizations are based on mechanistic principles, that strategy is a structured process and human thinking and actions are controllable concepts. They argue that in an era which is dominated by uncertainty and the need for flexibility, strategizing is 'messy' and an articulation of the strategic intent is difficult (Ciborra 1997). A planning-oriented approach to business objectives may not be the most suitable way to look at the issue.

A remaining problem is that challenges of competitive business environments cannot be met with more technological support systems and communication tools. Even though there are plenty of attempts to 'fit' or 'align' technologies with business strategies (e.g., Venkatraman et al 1993), still there are internal and external dynamics that lead to unintended consequences and drift, and affect the effectiveness of ICTs in strategies (Ciborra 2000; 1999). The next section makes explicit the need for this research.

1.1.3 Emerging Issues for Research

It is somewhat paradoxical that the more the post-modern society advances its information capabilities and technological competencies, the more sustainable business advantages seem to rely on raw human talent and cultural values. (Morosini 2000: 259)

There is little literature which takes into account influencing factors of the organizational milieux that shape IS. Context includes elements that are difficult to understand and categorize, e.g. elements of culture, attitudes, moods, incentives, reward systems, politics, and so on. Often, despite advanced IS and clear strategies, a major source of uncontrollable consequence comes from knowledge workers themselves. Arguably, they may rely too much on ICTs in their work at the cost of considering the intervening elements of the environment, or they may misuse the system by intentionally deceiving and distorting

information - as in engaging in rent-seeking behavior (Mudambi & Navarra 2004; Foss & Pederson 2004). Nevertheless, assuming it was possible to devise the right strategies, to adopt the right technologies and to align these in the right way, still there is the human agent in the game that has a key role to play. While the socio-technical view is a step further to addressing IS requirements in organizational reality, it tends not to account for the complex role of the human agent in the strategizing process. Additionally, there has been reliance on quantitative measures of outcomes, which lead to results that have limited applicability across different contexts (i.e. Mingers 2001). A source of frustration among practitioners has been the difficulty to communicate management specific information and knowledge in a way that is interpreted by the receiver the way they were meant to be understood (Maes 1994). Among others, different mindsets affect communication across cultural contexts and may turn misinterpretations to unnecessary conflict (Whitley & Introna 1996). While the knowledge-based view (KBV) of the firm and managerial capabilities (Teece et al 1997) address the human side of the equation, their influence in business strategizing and IS has been largely under-developed. Most studies have focused on organizational and analytical levels with limited focus on the micro-level strategizing (i.e. manager's ability to leverage IS in a useful manner as suggested by Fardal, 2007).

Emphasis on the contextual nature of decision-making has been made by Mintzberg (1978), Isenberg (1987) and Mintzberg and Waters (1983) to further highlight the role of the firm's implicit or tacit knowledge acquired throughout its history, and which it is not explicitly aware of. But little attention has been given to this area in the IS literature that also considers the human agent and their approaches to strategizing. Specifically, this thesis challenges the underlying assumptions of the rational top manager who is in control of strategic intentions by reflecting on an alternative ontological position of the manager, arguing that agents in organizations are bound to situations that are influenced by cultural political and power-behavioural factors (Mintzberg 1987; Pettigrew 1987; Prahalad & Hamel 1990). Whether it is technology that acts on organizations, or humans that determine how technology is used, is a long-standing debate in the IS literature (Mumford 2000). A common element that has been covered by the literature to facilitate an enabling context has been culture, such as a knowledge sharing culture (Nonaka 2000; Alavi & Leidner 2001; Davenport & Prusak 1998). In terms of creating an enabling context, literature considers the relationship between business strategies, IS and culture as a way to create superior performance (Shore & Venkatachalam 1995). However, few researchers have looked into how cross-cultural thinking about strategizing may influence the dynamics of knowledge sharing and transfer in decision making (Courtney 2001).

The arguments in this section set the context in which IS are studied. This is the point of departure to set out the research objective and design.

1.2 RESEARCH DESIGN & OBJECTIVE

This section outlines the research objective and design. Decisions had to be made in regards to the theoretical framework, methodology and empirical work. The interest of this research is to explore the ways in which IS are used by senior managers in the process of strategizing to gain competitive advantage. Notably, there is an attempt to bridge strategic management and IS literature. The purpose of the strategy literature is to inform the context of IS and the factors that may influence its study. A question that has been debated in the IS literature is, how are managers able to use IS to be efficient and respond quickly to changing environments (Galliers 2000)? - hence, the question of achieving efficiency and innovation (Clark & Staunton 1989; March 1991; McElroy 2000).

The concern is not to see how IT may help to formulate grand strategic plans, but rather to examine strategizing as an ongoing process with the role of IS therein. This invites a holistic interpretation of IS in strategizing with a multi-disciplinary approach. While key concepts are based on the IS literature (e.g. Earl 1989, 1993, 1996; Weick 1995; Checkland 1981; Galliers 2001; Galliers & Newell 2003; Whitley & Introna 1996; Introna 1997; Ciborra 1997; Walsham 1993; Pettigrew 1985; Whittington 1993; Nonaka & Takeuchi 1995; Von Krogh et al 2000), the integration of relevant thinking from Strategy and Organizational Sciences (e.g. Leavitt 1965; Mintzberg 1973, 2000; Mintzberg & Waters 1985; Finkelstein & Hambrick 1996; Prahalad & Hamel 1990; Child 1972; Miller & Friesen 1984; Eisenhardt 1989a/b; Senge 1992; Hammer 1990; McFarlan 1984; Morton 1991) provide valuable insights. Hence, the research appreciates the interconnectivity of the different theoretical disciplines to account for the interdependence of processes in practice.

Research Objective

The objective is to explore the ways in which managers use IS to leverage information and knowledge in strategizing in the face of complex environments and uncertainties. The study looks at the organizational socio-technical context and the nature of managerial work. Specifically, IS are investigated from both a deliberate and emergent strategy perspective. The IS strategizing framework is used as a sense-making device to navigate the case studies.
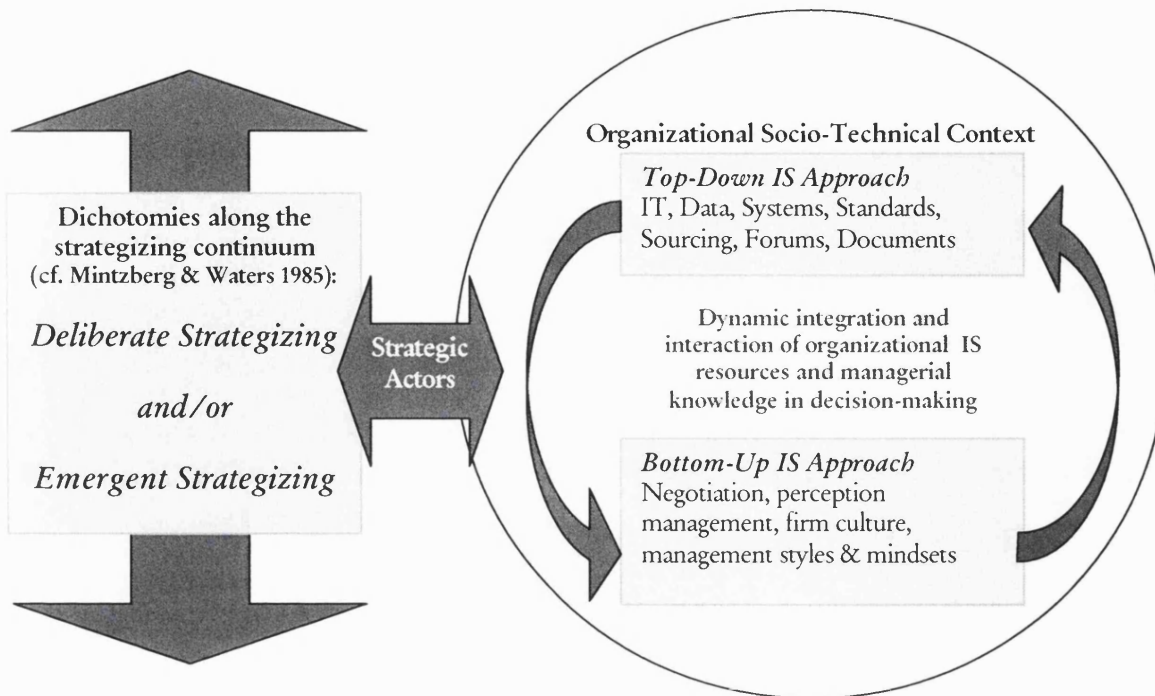
Figure 1.2: Key research components: strategizing, IS approaches, and strategic actors, corresponding to the conceptual framework (see chapter 4)

The research refers to Galliers and Newell's (2003 and the recently amended version in 2007) IS strategizing framework, which is seen as relevant in addressing the range of issues this research is concerned with. It is important to note that while the research refers to 'the theoretical framework', it is by no means thought to be a model or framework in its traditional sense. But rather it should be seen as a useful sense-making devise (Weick 1995) to guide the exploration process and inform the empirical work. It invites the opportunity to gather data in the real world while keeping a solid theoretical grounding. At the same time, the findings may provide arguments, which would suggest an expansion of the framework to incorporate key lessons and suggest areas for further research. It is hoped that it will help make sense of the problem situation in relation to its contextual forces that shape IS. More importantly, it does not rule out the consideration of emerging elements by setting rigid criteria. Chapter 4 justifies this choice in more detail.

1.2.1 Defining Key Terms

Before embarking further, it is necessary to explicitly outline the researcher's position on the key terms used throughout this thesis. Detailed discussion is provided in the literature review chapters.

In this research, strategizing will be examined within a competitive context. When the research talks about competitive strategizing, it refers to everyday managerial processes, where managers find themselves involved in competing in their environment to close a deal and build their business. The meaning of competitive is implicit to the organizational climate in which managers ponder. The climate is characterized by high levels of uncertainty and unpredictability, fast changes in terms of human agents (i.e. mobility and unpredictable behavior of participants within and across business units) and relevant technologies, information overload as well as the changing meaning of already existing information, which changes the strategic relevance of information. As a result, these are seen as shaping the direction of strategizing in organizations.

Before considering the role of IS in strategizing, first it is necessary to understand the requirements of strategizing processes in their particular context. Throughout this thesis, strategizing will be viewed as processual (Pettigrew 2003b) and emergent (Mintzberg 1987; Galliers 2004; Ciborra 2002), thus *strategizing* and *organizing* (Whittington 1993). Hence the term 'strategizing' is preferred to 'strategy' (Mintzberg 1987; Galliers 2004; Ciborra 2002). Here, 'process' implies that human agents are involved in decision-making, sense-making and sense-giving, problem-solving, and negotiating (Weick 1995; Wilson 2003). This process is assumed to involve various types of information, knowledge, as well as competing interests for resources, all determining the manner in which IS are used. Generally, the goal of IS is seen to facilitate making decisions faster and more effectively (Eisenhardt 1989b) by gathering, creating and sharing information and knowledge in more efficient ways.

As a further note, the strategic planning literature distinguishes between long-range strategic and short-range tactical (Mintzberg 1994). It is necessary to acknowledge that tactics, referring to the details of things, is irrelevant to the emergent view on strategizing and in the context of this exploratory research. Specifically, the very meaning of emergent strategizing suggests that one can never be sure in advance what is a strategy or tactic (Mintzberg 1994), or in this research, what is strategizing or 'tacticizing'. According to Rumelt, 'one person's strategy is another's tactics – that what is strategic depends on where you sit' (1979: 197). Furthermore, the temporal aspect implies that what seemed tactical yesterday may not be so tomorrow (Mintzberg 1994). Thus, the term tactical will not be relevant to the goal of this thesis, which, as it will be unveiled, puts into question the very nature of strategy as practice and the attribute of IS, action, or decisions. An alternative

view will be proposed based on a traditionally competing ontology, which will form the main theoretical contribution of this thesis.

In this context of strategizing, the research examines the use of information, knowledge and relevant systems by human agents as a way to shape their journey towards a desired goal. The process towards a desired goal is seen as thinking, sensing and doing of work 'in-order-to' manifest desired perception into reality. The term information is defined as a message that is communicated between a sender and a receiver to change the way the receiver perceives something (Sanchez 2001). According to Davenport et al (1998), data becomes information when the sender adds meaning by contextualizing, condensing or categorizing it. More specifically, this research refers to managerial information (Introna 1997), which may be conceived as 'management understanding in-the-world, in-order-to get the job done' (Introna 1997: 156). Knowledge is a far more complex concept and is discussed in chapters 2 and 3. Knowledge will be regarded as transient and a core ingredient of ongoing learning and innovation (Nonaka 1994; Nonaka & Takeuchi 1995). Specifically, the research keeps a curious eye on the meaning of the term tacit knowledge (Polanyi 1966), a phenomenon which has made the study of strategy and IS interesting and complex. Tacit knowledge will be linked to personal knowledge (ibid.) and a central and intrinsic argument in this thesis is Polanyi's assertion that 'we know more than we can tell' (Polanyi 1966: 4). Nevertheless, information and knowledge have a certain level of interpretive ambiguity due to specific contexts and individual perspectives (i.e. Zack 1998). Notably, what is most relevant to this research is the *use* of managerial information and the more tacit and personal dimension of knowledge by human agents while they are involved in strategizing. Hence, the focus will be on the use, not as much on the content. Here, Blackler (1995) provides supportive taxonomies such as knowing, embedded and encultured, which will be especially insightful points of departure towards a holistic understanding in the analysis. In this context, the goal of information systems (IS) is seen as a tool to support human agents in forming more effective decisions and actions more efficiently (Eisenhardt 1989b). This means gathering, creating and sharing information and knowledge in a more efficient manner, taking into account internal and external influencing factors. The research does not assume IS to be strategic in themselves.

Nevertheless, this research puts forward the interrelation between strategizing, the human agent, and management IS. The field of IS is viewed as multi-disciplinary and with multiple focus (Ciborra 2004). The analysis examines the use of IS in strategizing by considering the relevance of phenomenological assumptions to a research field saturated with paradigms

advocating the rational school of thought. Throughout the thesis, the justification for the 'how' (the why behind the how) will shift from the 'what' (i.e., IS) towards the 'who' (i.e., human agent), in order to explain the 'why' (i.e., the ways IS are used in strategizing). While the 'who' component becomes relevant towards the latter part of the thesis, it is necessary to introduce the different views earlier in the thesis in chapter 2. In this research, the 'who' will be referred to as the human agent, the strategizer, or the strategic actor, interchangeably. These will be experienced or senior managers and business developers in large organizations, who have considerable responsibility and authority over their decisions, actions and their use of IS. Notably, this definition differs from the more general IS-user in the IS literature, where her/his primarily role is within the realm of IT, e.g. the IS developer, Chief Technology Officer (CTO), or Chief Information Officer (CIO) (e.g., Earl 1989; 1993; 1996). The differences lies in that the manager is not obliged to use management IS, where as CTOs, Engineers or administrators may be dependent on the use of IS/IT due to the nature of their work.

Specifically, the assumptions behind the human agent are discussed from traditionally competing perspectives, including Mintzberg's (1971; 19980; 1983; 1985; 2000) analysis on the manager and managerial work, as well as Heideggerian phenomenology (1962; 1988) based on Introna's (1997) interpretation (see chapter 2). While their underlying philosophies appear to be in conflict at first, this research will show the value from conceiving them as complementary by analysing different ontological positions. Specifically, the meaning of the human agent is well depicted by Ciborra (2004: 19):

> 'Human existence is an essential ingredient of what information is, how the life-world gets encountered, defined, and reshuffled, and – last but not least – how technology gets used everyday.'

Nevertheless, the role of the human agent will be shown to have a far more central and multi-dimensional impact on the *usefulness* of IS in the organizational dynamics than discussed in the mainstream IS literature.

Two other key terms that will be used frequently are 'ambidextrous' and 'immanent' (see chapter 2). The former is used in reference to the 'ambidextrous strategizing', a way to articulate the simultaneous use of tools as well as two modes of 'being' that have been considered as competing in the traditional research i.e. deliberate IS versus emergent IS strategies, dwelled versus intent (as of strategizing), rational versus involved (human agents). The term 'immanent' is a philosophical reference used by Chia and Holt's (2006) discussion on strategy as dwelling. Chapter 2 reviews the underlying assumptions in detail.

1.2.2 Choices of Methodology and Method

The choice of methodology inevitably determines the ways in which data are interpreted and analyzed. Empirical studies in strategizing and IS face contradictory pressures (Balogun et al. 2003). While recent European thinking has been more receptive to developing a holistic view on IS (Mingers 2001), the paradigm in IS research has been largely influenced by US business school and consulting practices. These take a predominantly IT-based view on IS and positivistic methodologies take centre stage. Although empirical studies based on quantitative data have been fruitful, they are as valuable as they are related to the specific context and under the set of assumptions they were studied. On the other hand, the social study of IS considers IS in the realm of social systems, where the distinctive nature of knowledge involves intangible and unobservable complexities. At the same time, quantitative methods to measure data become very difficult (Godfrey & Hill 1995) because they have the tendency to separate the problem from its wider context (Hackney et al. 2000) and so pose analytical limitations to inquiry.

This research appreciates phenomena in their wider context and finds interpretivism as particularly valuable to allow new understanding to emerge. Hence, qualitative case study methods are seen as being most appropriate to account for more subjective and unobservable factors in organizations (Collis 1991; Hitt et al. 1998). The aim is not to provide a solution, but to use the opportunities interpretivism provides to shed light on a subject which has traditionally been associated with the rational school of thought. Specifically, interpretivism allows the incorporation of philosophical conceptual underpinnings, which will be especially helpful to our analysis. The hermeneutic circle is especially powerful in creating an interpretive feedback process between the practice and the theoretical framework, whereby relevant literature informs the process. Hermeneutic techniques helped to identify and describe issues associated with the use of organisational knowledge at the strategic level (Alavi & Leidner 1999; Nonaka 1994).

The methods to collect the empirical data are qualitative interviews and observation. The analysis was based on interpretive and hermeneutic analysis (Gadamer 1975; Boland 1991). Document research was also conducted, not as the primary method, but during the early stages to learn about the organizations and the way they do business. While the majority of interviews are semi-structured, these include opportunistic unstructured and conversations. Nevertheless, the research methodology will be justified in chapter 4 and methodological limitations will be discussed in chapter 8.

1.2.3 Empirical Work

The empirical work considers two case studies. These are different in many regards, such as their industries, elements of their IIs, and predominant forms of IS. The common ground on which they are selected is their competitive business strategy in business development. The comparison draws attention to the relationship between IS and business strategizing, specifically with regard to exploitation and exploration approaches to strategies and using IS. In case study 1, a hydro-power generation company, the researcher conducted interviews at the German and USA locations. While not a cross-cultural study, those elements that influenced the use of IS included cross-cultural differences. In case study 2, a private bank based in the US, data collection methods included observation. The nature of investigation in this case was more situated and more involved in the day-to-day strategizing processes on the managerial level. The consideration of different contexts was not meant to establish generalizations, but to explore the components of the theoretical framework across contexts. This was an attempt to find out about differences and similarities in the ways in which strategic actors engage in strategizing through IS (e.g. Eisenhardt 1989b). The researcher believes that it is through comparison, where finer distinctions in the exploration process emerge.

1.2.4 Expected Contributions

This thesis is one of the first detailed applications of the IS strategizing framework in managerial strategizing across two cultural contexts. As a result, the strengths and weaknesses of the framework will be revealed in the process, albeit these will be specific to the particular context of this research. Furthermore, the use of interpretivism, through the hermeneutic circle, will be especially powerful in drawing meaning from the empirical findings, and reflecting back on the framework to potentially incorporate extensions.

Section 1.1 outlined some concerns from the preliminary investigation to identify potential contributions to practice. The following was found to interest senior managers the most:

- What do managers really need in terms of IS to get their jobs done and remain flexible, considering the conflicting demands? (Strategy Consultant, UK; IT & Engineering Firm, UK);
- Why is it difficult to share knowledge organization-wide? To what extent could centralized IS help to capture managerial know-how for ongoing organizational learning? (Global Petrochemical Company, Netherlands);

- What hinders the openness to share knowledge and collaborate? (IT & Engineering Firm, UK).

While the IS strategizing framework will be used as the primary lens, supporting theories from the literature will inform the hermeneutic process in reaching deeper levels of understanding. To this end, the direction of this research will address the following:

- Potential limitations underlying the assumptions of strategic alignment;
- The consideration of the human agent from alternative perspectives to the rational-view: the analysis will carefully introduce the integration of a different ontology as a way to understand the essence of the problem domain;
- The research does not attempt to draw a distinct line between the concerns of organizational versus managerial levels, but rather will leave room to consider emerging topics as of unintended consequences that may affect the use of IS.

While this research is not aimed to answer to a specific question, it aims to provide new understanding of the underlying issues to a complex problem, which has been extensively researched but not fully understood. More specifically, the findings will suggest a shift of focus from IS resources towards the *usefulness* of existing IS, i.e. the ability of human agents to make any IS useful while pondering in their competitive context. It is in this spirit where the research tales am involved perspective on strategizing and the use of IS therein. Chapter 8 will reveal interesting implications to the field of management IS (MIS) and strategic IS (SIS). For example, future research may re-examine the strategic attribute of SIS from an involved perspective to determine how IS may be developed or managed in a way to become more useful to strategizing senior managers.

1.3 THESIS STRUCTURE

The thesis is organized in eight chapters (see figure below). Following this introductory chapter, the next two chapters attempt to establish the context for the research framework, which is introduced in chapter 4. Chapters 2 and 3 examine relevant concepts from the strategic management, information systems and organizational theory literature. While chapter 2 discusses concepts in relation to the managerial level, e.g. strategizing, decision-making and management information, chapter 3 reviews the literature in information systems to set the organizational context within which strategizing takes place. Chapter 2 makes explicit relevant complexities and embeddedness of information and knowledge processes in managerial strategizing processes. Chapter 3 looks at organizational

collaborative arrangements by reviewing IIs and underlying components such as ICTs and culture, and how these relate to organizational learning and memory. Chapter 4 synthesizes the concepts to portray a coherent picture of what the thesis is about and reveals the chosen epistemology in the form of the IS strategizing framework. Furthermore, the chapter justifies the choices of methodology and methods.

Having introduced the context, the framework, and methods of inquiry, chapter 5 will give the background to the two case studies, and chapter 6 presents the findings. A critical analysis is conducted in chapter 7, where the findings are related to the literature. With the help of supporting concepts, the chapter points out how the analysis may contribute to the conceptual framework. Chapter 8 concludes and reflects on the overall process, outlines contributions of this study and suggests areas for further research.
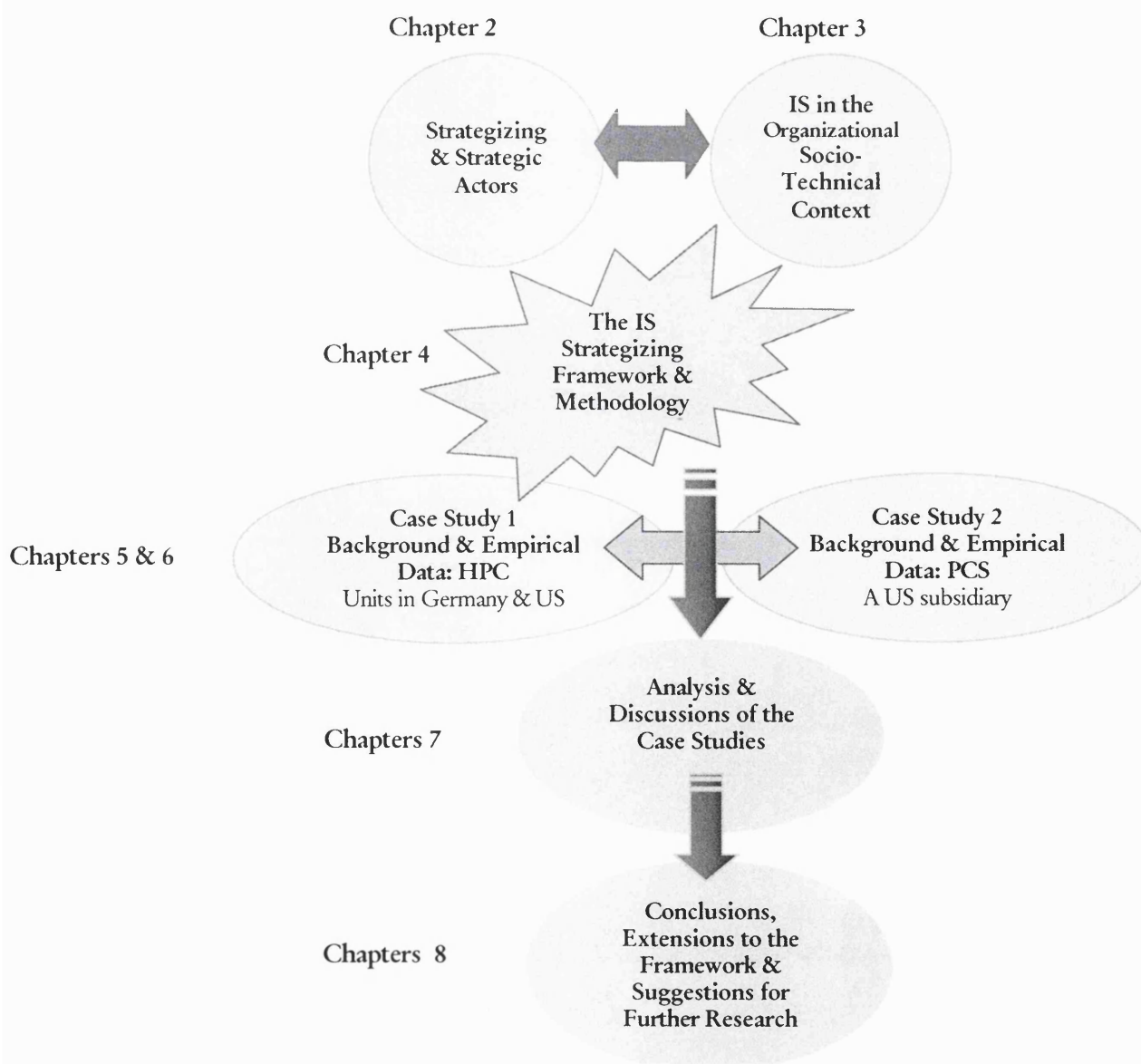
Figure 1.3: The structure of the thesis

CHAPTER 2 STRATEGIZING & STRATEGIC ACTORS

*This chapter reviews the literature on the concepts that set out the context
of this research. These are strategizing, management information and
knowledge, and human agents.*

2   INTRODUCTION

The research explores the ways in which IS are used by managers in competitive
strategizing. IS are seen as vehicles through which management information (MI) and
knowledge may be leveraged. The premise of this literature review chapter is that in order
to understand the role of IS in strategizing; first, an understanding of the nature of
managerial work should be established. Data, MI and knowledge are regarded as
ingredients of managerial work. The purpose of this chapter is to define these key
concepts. Chapter 3 will then discuss how an enabling context through information
infrastructures (IIs) and information systems (IS) many support the dynamics of the
concepts explained in this chapter.

2.1 PERSPECTIVES ON STRATEGY

Strategy has been approached from several theoretical traditions in how it may impact the ability of firms and managers to gain sustainable competitive advantage (Porter 1980; Kogut & Zander 1992; Penrose 1959; Chandler 1962; Pettigrew 1985; Prahalad & Hamel 1990; Wernerfelt 1984). Perspectives range from the classic industrial economics to more integrative perspectives on emerging issues (Heracleous 2003; Carpenter & Sanders 2007). The implication of each perspective leads to different conclusions. Generally, two common theoretical conceptualizations in the literature are the exploration versus the exploitation strategies based on the top-down versus bottom-up tradition. Notably, there has been limited empirical investigation of the *interaction* between the two, and more specifically, their integration (He & Wang 2004).

Competitive strategy is concerned with matching internal capabilities of a company and its external environment (Porter 1996; Wernerfelt & Karnani 1987; Hoskisson et al 1999). The general position of this research is in the resource-based view of the firm (RBV) (Grant 1991; Barney 1991; Teece et al. 1997), which implies that the sources of competitive advantage reside within organizations. There are many views on what these sources are. Barney (1991), for example, groups resources into physical, human and capital categories and talks about imitability, obtaining tangible or intangible resources that are not easily imitated by other firms. Grant (1991) added to these technological, financial, and reputational resources. Unlike resources, capabilities are based on developing, carrying, and exchanging information through the firm's human capital. Concepts such as 'core competence' (Hamel 1991), 'capabilities-based competition' (Stalk et al. 1992), and 'dynamic capabilities' (Teece et al 1997; Nonaka 1994) emphasize human capital as being of strategic importance to firm behavior and performance (Nahapiet & Ghoshal 1998; Lado & Wilson 1994; Teece et al 1997; Pfeffer 1998). The RBV argues that organizations should develop core competencies, which are rare and difficult to imitate (Prahalad & Hamel 1990). Capabilities refer to a firm's capacity to deploy resources, usually in combination, using organizational processes, to affect a desired end (Amit & Schoemaker 1993). Teece (1992) defines capabilities as a set of differentiated skills, complementary assets, and routines that provide the basis for the firm's capacities in a particular business.

Besides developing unique internal resources, the literature argues that the RBV needs to also consider the external environments (Amit & Schoemaker 1993). According to Porter (1991: 108): 'resources are only meaningful in the context of performing certain activities to achieve certain competitive advantages'. He suggests that the competitive value of resources can be enhanced or eliminated by changes in technology, competitor behavior, or buyer needs which an inward focus on resources will overlook (ibid). Along these lines, more recent views on strategy center on the 'dynamic strategy' concept (Carpenter & Sanders 2007). It is argued that strategy needs to embrace the rapidly changing macro environments of globalization and technological advances. The underlying assumption is that change is inevitable and strategy must thus be flexible in its formulation and implementation in order to take account of a firm's changing situation in the dynamic environment.

These assumptions affect the conceptualization of the practice of strategy on the managerial level. Mintzberg (1980, 1994, 1975) reviews fads and fixes of various schools of thought in strategy. Notably, a traditional approach has been to conceive the practice of strategy as conscious and analytic. The emphasis here is on strategy *formulation*, according to Mintzberg (1980), where strategies are structured processes of conscious rigorous analysis based on models and data. They are 'top-down' and control-oriented because the formulation starts at the top of managerial pyramid with senior managers carrying responsibility for its implementation and execution. The aim is to keep models explicit, structured and simple. Examples of such models are the value chain, the strategy-structure relationship, and the Boston Consulting Group matrix. They are each based on classical notions of rationality (diagnose, prescribe, implement), where the structure of an organization follows the formulation of a strategy, hence, separating action from structure. However, the top-down approach is criticized to have led to short-lived competitive strategies (Mintzberg 1980) and to failure from conception to execution of those strategies. This called for considering some of the taken-for-granted factors endemic to organizational life, such as muddling through and the evolutionary nature of decision-making processes, which influence the success of strategy ((Tsoukas & Chia 2002; Orlikowski 2000; Feldman 2000; Ciborra 1994). Along these lines, Mintzberg (1990) attributed the failure of top-down strategies to the following.

First, the explicit and rational views on strategy assume the environment is constant and predictable, and events happen sequentially. This implies that a deliberate implementation is possible. This, above all, neglects the role and interaction of human agents in the strategy process and managerial work. Strict adherence to rigidity hinders flexibility, learning, adaptation and opportunism. Second, the conventional one-way relationship perspective that structure follows strategy disconnects the human agent, i.e. the strategist, from organizational reality and assumes no connection between structure, strategy and behavioral processes (Weick 1979). It conceives strategy in a vacuum, where the role of personal references, mindsets, cultural biases, power and politics are undermined as major influencing factors of the strategy process (Tversky & Kahneman 1981). Third, Mintzberg criticizes the deliberate thinking and intentional processes as being unrealistic, and addresses the complexities inherent to the process of strategy formation across various situations and contexts (Mintzberg & McHugh 1985). These arguments lead the way to think of strategy as a *process* in which multiple factors from internal and external environments constantly and continuously interact and influence each other. The next section reviews the process-view on strategy.

2.1.1 Strategy as Process: Deliberate and Emergent Views

While this chapter attempts to position the research in the literature, it should be acknowledged that strategy is paradigmatically diverse and empirically complex (Pettigrew 1992). The topic of strategy relates to our investigation in looking at how conditions of success and failure emerge or are created in a certain way to improve performance, i.e. through corporate information and knowledge resources. This concerns the interaction of multiple internal and external factors and resources in the process of strategy. Within an integrative view on strategy, the underlying assumptions of the process-based view seem suitable in informing the scope of his research (e.g. Quinn 1980; Mintzberg 1978, 1994; Pettigrew 1985, 2003b). Thus, strategy will also be referred to as *strategizing* and *organizing* (Whittington 1993). The remaining of this section will expand on this choice. Advocates take into account organizational realities such as cultural factors, the dominant management paradigm, political inertia, and environmental surprises that may lead to sudden shifts in goals and plans (Argyris 1982; Bateson 1972).

According to Pettigrew (2003b), the strategy of an organization is the result of a process embedded in a context. Here, he emphasizes on the effect of contextual factors that lie at the heart of strategy processes. Specifically, the role of power and politics are viewed to have major impacts on future outcomes, which shape strategy (Pettigrew 1985, 1992, 2003b). Wilson (2003.) argues that strategy is mixture of social and economic processes, where organizations assimilate and process information. These influence the ways in which people and organizations interpret their environments, the way they imitate or differentiate themselves from others, and they way they learn. This research assumes that management information (MI) and knowledge are embedded within these processes, so are the human agents. Mintzberg and Waters (1995) argue for strategy as a process of continuous learning and knowledge acquisition. Mintzberg and McHugh (1985) suggest conceiving strategy as a continuum, where at each end there are deliberate and emergent approaches. The types of strategies that fall along this continuum, starting from the deliberate to the emergent, are presented as planned strategy, entrepreneurial, ideological, umbrella, process strategy, unconnected strategies, consensus strategy, and imposed strategies. While a detailed discussion of each of these concepts is not relevant to this research, accepting the range of possibilities and perspectives is important.

Along these lines, Mintzberg and McHugh (1985: 161) define strategy as 'a pattern in a stream of decisions or actions'. This conceptualization sprung from their exploration of the interplay between *plans* and *intentions*, and what actually happens in practice. Here, they refer to deliberate as *intentions realized*, and to emergent *as patterns realized despite or in the absence of intentions*. Mintzberg and Waters (1985) view the fundamental difference between deliberate and emergent strategies as follows: while the former focuses on direction and control (see section 2.1), where messages from the environment tend to be blocked out, the latter portrays the opposite extreme. It is not to say that emergent strategies correspond to chaos or are out of control, but rather they are characterized by a state of unintended order in which emergent patterns may come to change the intentions of managers in organizations, who are open to learn, and are flexible and responsive in behavior (Mintzberg & Waters 1985). Furthermore, emergent strategies involve some degree of tinkering, or *bricolage* (Levi-Strauss 1966), which encourage learning from the bottom, or from people at the operations level, who combine and apply known tools and routines to solve new problems. This leads to the notion of strategic learning (e.g. Sanchez & Heene 1997), where strategy is seen as a process of learning and of taking action in search of patterns and consistency.

A few words on the notion of bricolage (Levi-Strauss 1966): the term stems from Anthropology and describes the characteristic patterns of mythological thought. In IS, Ciborra (1993, 1994, 1997) uses the concept frequently to describe the ways in which strategic information systems (SIS) can lead to competitive advantage over a period of time. Bricolage is based on tinkering and learning by doing, leading to an incremental increase of the actor's and organization's competencies (Nelson & Winter 1982). Tinkering may allow strategies to evolve from the bottom-up by leveraging tacit knowledge and specific values deeply rooted in organizational culture (Ciborra 1993). There is no specific model available, only local cues from a situation are trusted and exploited in a somewhat blind and unreflective way, aimed at obtaining ad hoc solutions by applying heuristics rather than high theory. Mintzberg and Waters (1985) showed that even when plans were present, most of the time it was bricolage that led managers to new ideas.

The rationale behind this dichotomy is that deliberate and emergent strategies can be regarded as two legs attached to the same body. It would be rather unrealistic to find perfect forms of either strategy (i.e. purely deliberate or purely emergent), rather, it can be expected to find both aspects of deliberate and emergent strategies in practice, with tendencies towards either direction. However, if we were to consider purely deliberate strategies, Mintzberg and Waters (1985) argue that three conditions must prevail: first, there have to be precise intentions in the organization, where they are articulated in a concrete level of detail. Then, assuming that 'organization' means collective action, then there has to be no doubts as to whether the intentions were 'organizational'. Last, the collective intentions should be realized exactly as intended, which assumes no interference from external forces, and an environment which is either fully predictable, benign, or under control. However, decisions are subject to unintended outcomes which may be beneficial or hindering. It might be noted, in passing, that the concept of unintended consequences has been well established in sociology since Merton (1968).

For purely emergent strategies to exist, there must be consistency in action over time, or, there must by order in the absence of an intention, as Mintzberg and Waters (1985) put it. It is necessary 'to direct in order to realize intentions, while at the same time responding to an unfolding pattern of action' (ibid: 271). There is evidence for a positive correlation between an increasing level of complexity, ambiguity and uncertainty, and the diffuseness of decision-making as more special and interest groups get involved (March & Olsen 1976;

Hickson et al 1986). Accordingly, an increasing number of interest groups lead to an increased chance for overt 'political' behavior. Related to this line of thinking is the use of power in decision-making (Pettigrew 1992; Eisenhardt & Zbaracki 1992; Pfeffer 1981). Mintzberg and Waters conclude that the degree to which deliberate and emergent strategies occur and the nature of their interplay depends on various contexts and different circumstances.

The discussion of strategy as a process set the context in which strategic actors leverage MI, knowledge and systems. Specifically, decision-making was mentioned as a part of strategizing. The next section expands on strategizing as a process of decision-making.

2.1.2 Strategizing as Decision-Making

As of the discussion above, it is sensible to view strategizing as a process of sense- and decision-making (Weick 1995; Mintzberg & Waters 1985; Wilson 2003). Here, strategy is defined as a handful of decisions, which drive or shape most of a company's subsequent actions (Mintzberg & Waters 1985; Coyne & Subramaniam 1996). Specifically, decisions are a mixture of processes by which social and economic organizations assimilate information, interpret their environments, and differentiate themselves from others (Wilson 2003). Furthermore, decisions are often based on conflicting information (Green et al. 1999) and influenced by individual biases, negotiation and political games (Bennett 1998). Hence, decisions are also discussed as instruments of conflict and consciousness as embedded in social relations (March 1994). So, it sounds sensible to agree that decision-making processes should be based on adaptation and learning (Fiol & Lyles 1985) to leave room for potential errors, and for flexibility to enable the incorporation of unexpected changes (Ciborra et al 1992).

The study of decisions has never been easy. As it has been the case with strategy in the literature, the range of ambiguity that surrounds the content, context and process of decision-making has made its study difficult. For example, well-known literature includes the work of Barnard (1938) on *The Functions of the Executive*, March and Olsen (1976) on ambiguity and choice in organizations (e.g. Mintzberg 1987, 1978; Mintzberg & Waters 1985; Pettigrew 1985, 1987, 1989). On the two poles of decision-making, there is the

rational positivistic approach of weighing facts, and the more normative approaches that rely on experience, tacit knowledge, subjective judgments and intuition.

Generally, strategic decisions have been regarded as essentially intentional, purposeful and goal oriented. Traditionally, organizational theory has taken the mechanistic view that decision precedes action, with social systems being structured and intended human behavior being carried out in an orderly chain of events. Simon (1972), and Cyert and March (1963) subsequently developed an image of organizations based on assumptions that man was rational, but was limited by the complexity of the actual situation of decision-makers, i.e. models of bounded rationality (Simon 1972). An interesting perspective was presented by Nicolaides (1960: 173), who implies that some decisions may turn out to be artificial constructs:

> Organizational decision is in reality a constellation or a galaxy of numerous individual decisions', some of which are 'registered' in the book of the organizational activities, while others remain hidden in the inner sanctum of the human psyche. 'When and where a decision begins and ends is not always clear.

The general problem associated with decisions in organizational contexts is the mechanistic image of decision-makers, which is still prevalent – assuming a top-down and structured progression from the point a decision to its implementation and outcome. This implies a direct relationship between an intention and following through that plan in action. However, Mintzberg et al (2000) argue that strategy becomes more of an emergent phenomenon when patterns or consistencies are realized despite, or in the absence of, intentions. They acknowledge in their later work that they were in fact not studying streams of *decisions, but of actions*, since actions are the traces left behind in organizations. This argument was based on the assumption that if an organization did something, it must have decided on it previously, hence, assuming that decisions inevitably lead to actions. There may be a decision without subsequent action, i.e. when a central decision is subverted by others in the organization so there is no action taken. Also, decisions are difficult to identify because sometimes they just do not exist (Mintzberg & Waters 1990).

In a study, Mintzberg and Waters (1990) tried to track back an action to where it originated, namely to a point of decision. However, it led to nowhere and no one, because it turned out that over a period of time a group of individuals speculatively shared their work and improvised in the midst of multiple decisions and activities, which then may have snowballed into a visible engagement and developed its own momentum. In effect, it

would be labeled as a 'decision', which emerged from various levels, units and purposes over some time. They argue that this is an example of social systems acting without consensus (ibid).

We argued that decision-making is subject to specific assumptions, and that any assumptions are bound to a variety of complexity, uncertainty and ambiguity. In an exchange of view between Mintzberg, Waters, Pettigrew, and Butler (1990), Butler disagrees with Mintzberg and Waters (1985) for defining strategy as 'a pattern in a stream of decisions [because] strategy must surely involve a degree of intention to act, a kind of plan which is to be put into effect' (Butler 1990: 15). After all, the concept of strategy originated from the study of military campaigns and was translated into the business arena. At the same time, Mintzberg and colleagues acknowledge that their definition may appear controversial because the term is always defined formally with regard to intention. They infer that if strategy was only in regard to intention, then one would study perceptions, devoid of behaviour (Mintzberg & McHugh 1985). It is rare for a commander to say what his strategy is before a strike. Were a military commander asked what his strategy is, he could not say what will exactly happen and would say 'I can only tell you after the battle' (ibid). Does that mean there is no strategy? Or is the emerging events a strategy in itself? In retrospect, it is possible to reconstruct a strategy by looking at the decisions made along the way, and the actions taken by a general over time. As Butler (1990) notes, such a scenario would imply that the decision process would not be dependent variable, but would become an independent variable, where decision processes are tracked back to see whether there was a plan, or an intention in the first place. Here, process would become an explanation of strategy.

At the same time, Mintzberg and Waters (1985) acknowledge the limitations of studying the process of strategy in terms of the multiple units and levels of analysis, and encourage a wider perspective to account for the variety of ways strategies actually take shape under changing circumstances.

2.1.3 Decision-Making as Problem-Solving & Sense-Making

Another relevant way to look at decision-making is Wilson's (2003) view on actions, which implies that there may be actions and there may be outcomes, but as previously discussed,

there is no definite linear link between the two variables. In this light, Wilson (2003) talks about the polar opposites of planning versus chaos (see outline below; ibid: 393). The planning perspective assumes a direct relation between the problem to be solved and the decision taken. Chaos assumes the environment is complex and makes no such linear assumption. These are two 'ideal types' and one should not assume one or the other. Rather, both happen to differing extents, depending on multiple factors. The strength of each view may become relevant to understanding the ways towards strategizing in our case companies, and in relation to the role of IS.

Planning
- Analyze and codify complex problems
- Question and challenge current practice
- Involve others and create higher levels of ownership
- Communicate as fully as possible
- Set up key performance indicators by which progress can be monitored and judged.

Chaos
- Avoid over simplifying the process
- Avoid means-ends errors
- Appreciate more fully the role of politics and influence where different stakeholders try to influence the decision process and its outcomes in ways conducive to their interests
- Think creatively around complex problems
- Avoid thinking solely in linear sequences and appreciate that it is sometimes useful to take actions off at a tangent
- Appreciate the influence of the context in which strategic decision making takes place.

The chaos perspective views firms as 'anarchy' or a system with chaotic tendencies. Here, there is no way managers can fully understand and control internal processes due to unforeseen circumstances and actions that arise unexpectedly. As a result, actions do not lead to expected outcomes. The main components of a decision-making process (problem, solution, participants and choice situations) interact with a range of other factors a long the way in an unpredictable manner. For example, participants may move in and out of the decision-making (every entrance is an exit elsewhere) in a discontinuous manner, or fight for the right to become involved but never exercise their influence (Wilson 2003).

A key insight from these perspectives is that individual managers have different approaches to making sense of problems, of interpreting information and applying their knowledge. Thus, decisions have also been discussed in the frame of sense-making and a series of mental activities consisting of scanning, interpreting and acting (Weick 1995; Daft & Weick 1984; Milliken & Lant 1990). Sanchez (2001) defines sense-making as the process of perceiving events and forming expectations about the significance of current events based on their similarities or differences with the past. According to Sanchez, the essential building blocks of organizational sense-making processes consist of data, information, knowledge, learning and interpretive frameworks. For example, the process of sense-making involves gathering and interpreting data to create information that is used to form meaningful relationships in an organization. Data are referred to as qualitative or quantitative descriptions of events, or selective representations of events, which are always incomplete. In organizational contexts, data helps to make objectively correct decisions. Too much data, however, makes it harder to identify make sense of the data that matters (Davenport & Prusak 1998). Data do not have inherent meaning and do not provide interpretation (ibid). At the same time, it is through a comparison between data that meaning is derived, as well as through the metrics used to make those comparisons.

According to Sanchez (2001), the data entering an organization are influenced by the interpretive frameworks that determine which events are noticed and how they are represented. Interpretive frameworks are existing set of beliefs about causal relationships as to which events are drawn in the sense-making process. Managers' interpretive frameworks influence what draws their attention and what is dismissing i.e. acting as a cognitive filter. When that which is noticed appears to be consistent with our beliefs about causal relationships, then we modify our beliefs to become more consistent with our observation of the events and hence make the events more 'understandable'. Hence, the interpretive framework is conceived as both the means for and the result of our sense-making (Sanchez 2001).

Information is associated with the meaning that is imputed to some data when it is evaluated in an interpretive framework (Sanchez 2001). It is a message that is communicated between a sender and a receiver to change the way the receiver perceives something. According to Davenport et al (1998), data becomes information when the sender adds meaning by contextualizing, condensing or categorizing it. Following the

argument that decisions involve sense-making, and making sense of the world is predominantly subjective, the key analytical construct is interpretive (Wilson 2003). Wilson argues that in order to understand the process of decision-making, we need to uncover how individuals interpret and define their world. Therefore, a theory of decision-making becomes a theory of interpretation (ibid). This is a key assumption the research adopts when analyzing the case studies in chapter 7.

In this light, Weick (1995) points to the inter-subjective nature of interpretation, where thinking and acting are merged between individuals. He argues that inter-subjectivities, such as using the term 'we believe' and 'I believe', are not just created by social structures, but created and maintained by a shared level of social reality over time, shaping the boundaries around decision-making. The inter-subjectivities involved in the process of decision-making become embodied in structures over time, such as networks or in roles (Wilson 2003). Here, events will follow regardless of the individuals in the story, or 'plot'. These events have a powerful influence on building organizational memory (OM) (Walsh & Ungson 1991) and also on building managers' interpretation of the environment and the knowledge acquired through experience (Blackler 1995). Furthermore, Cohen et al (1972) demonstrate how these plots may shape decision-making by reversing the problem-solutions sequence, where ready-made solutions are designed for problems that have not yet occurred. When it comes to decision-making, these generic subjectivities have an influence on whether the thinking behind coming to a decision is based on looking backward on what happened, or looking forward. Having said that, Pettigrew (1985) argues that whether choice behavior is described as problem-solving, decision-making, or strategy formulation, is merely a reflection of the socio-political context, i.e. the deeper contextual forces. He goes on to argue that words do matter, as they set out the ontological and epistemological assumptions that lead to a way of thinking and open or close doors to other fields of study. He proposes decision-making to be understood as a continuous process in context, inferring that variability in the content and context of decisions shape the decision process (Pettigrew 2003).

On the other hand, Hickson et al (1986) focus on a different unit of analysis, on the decision episode rather than context. They claim that it is the politicality of what is under decision that matters: 'to know the process, first know the complexity of the problems and the politicality of the interests' (ibid: 241). Pettigrew counter argues episode or events as the

unit of analysis in that they limit themselves to snap-shot time-series data, and fail to consider the holistic and dynamic processes through which changes happen. He encourages a contextualist analysis (Pettigrew 1985), which considers the interdependencies between socioeconomic context, features of intra-organizational context and interest-group behavior over time. While Mintzberg et al. (1976) argue that the ways in which decisions are made in organizations vary, it is possible to draw upon patterns of these variations to show that some decisions can be made in similar ways. An important aspect to note is that decisions that are made in a context also help to influence the context for future decisions. For example, the output from decision 1 forms part of the input for decision 2 (Butler 1991). Meyer and Scott (1983) address this by explaining the setting of the 'rules of the game' under which decisions take place, how these are reinforced by successive decisions and how a performance gap between expected and actual performance might force a change to the rules (Butler 1991).

Furthermore, Regner (2003) distinguishes between 'peripheral' and 'central' strategic contexts and argues that the closer to the edges of corporate reach strategy-making gets (in terms of market and knowledge), the more it is characterized by heuristic and explorative activity. In contrast, strategy-making in the centre is characterized by deductive, well-defined representational methods. This is because decision-makers at this level analyze local conditions in terms of their being conspicuous to organizational aims and try to frame these as to fit with a 'represented' view of organizational objectives (ibid). Regner (2003) asserts that while deliberate strategic planning is most prevalent in the centre, decision-makers at the periphery develop a growing *phronetic* awareness of the demands of new markets through direct local engagement. Hence, on this level, strategy is seen as more emergent and is rooted in the non-deliberate practical coping, in local improvisation.

Thus far, this chapter has reflected on various perspectives on strategy. Strategy has been viewed as the *process* of decision-making with respect to interpreting information and making sense of ambiguities in the strategizing work. The consideration of dichotomies of strategy and decisions making (i.e. mechanistic and deliberate versus emergent and ongoing learning) have implications on the key assumptions behind strategic actors. This section concludes by acknowledging that the attempt to narrowly define aspects of strategy also constrain its study. There are multiple factors that make up strategy in organizations, and decision processes and actions are part of the same explanation. Relying entirely on

individual concepts and defining the entire concept from that view would limit our understanding of behavior. Hence, while a process-based view is taken, the research does not take an absolute view and is open to new perspectives as they emerge. The next section reviews the ingredients of decision-making in the scope of managerial work.

2.2 MANAGERIAL INFORMATION & KNOWLEDGE

Strategizing was discussed as a process of decision- and sense-making. What go into managerial decisions are data, information and knowledge. This section explains what is meant by managerial information (MI) and knowledge in the context of managerial work.

2.2.1. Managerial Work & Information

Traditionally, the IS literature has defined information and knowledge based on the IT-based conceptualization of IS. These definitions have been drawn from business management models and frameworks. Such assumptions imply a linear progression of decision-making, i.e. starting with defining a problem, then diagnosing it, designing a solution, making a final decision, and leading to action. Furthermore, there is still a prevalent Tayloristic view on phenomena. For example, Tayloristic school of thought views the manager as the master of the ship, the person who engages in planning, organizing, staffing, coordinating, controlling and leading (Fayol 1949: 43). One implication of the assumption behind the rational view is that other topics related to the manager will be interpreted in the same positivistic manner – i.e. management IS (MIS) - and hence, conclusions will be according to those assumptions. The same applies to how the concept of MI, systems and IS have been interpreted in the literature. Advocates (Simon 1979; Thierauf 1987) to that view take the assumption that all management activities imply decisions, where MIS support these activities, i.e. those of planning, organizing, staffing, and controlling. The overlying principle is that if decisions are supported by MIS, then management is successful (Introna1997).

Below are some traditional definitions of MIS:

> Effective management information systems allow the decision-making (i.e. the manager) to combine his or her subjective experience with computerized objective output to provide meaningful information for decision making. They make use of interactive processing whereby query capabilities can be used to obtain desired information for decision-making. .... (Thierauf 1987: 22)

> MIS provide information that is useful in making decisions. This information is designed to support effective planning and control of business activities. Information that is provided by a management information system is often produced from data that are aggregated, summarized, and presented in such a way as to be of value to managers for decision making purposes. (Schultheis 1989: 55).

> The objective of an MIS is to provide information for decision making on planning, initiating, organizing, and controlling the operations of the sub-systems of the firm and to provide a synergistic organization in the process (Murdick 1990: 3)

The assumptions behind the rational views are put in question in the context of the interpretive research. Introna (1997) notes a tendency towards an implicit acceptance of Tayloristic dualism, and an acceptance of decision-making as the *a priori* basis, management *action*. Taylorist dualisms separate thinking from doing for the sake of gaining control. This control is achieved by 'capturing' data and 'creating' data systems for filtering and surveillance. Hence, the manager must use data in thinking to make rational decisions. Introna (1997) implies that this dualism led to the emergence of the idea of the rational manager, which saw decision-making as a central management activity. This portrays a narrow understanding on the nature of the agency, on information and managerial work. Assumptions of the 'rational manager' may be appropriate for stable times and environments with a set of predictable or fixed parameters affecting strategizing activities. Where there is certainty and stability, a conception may turn to a decision and to action without interference. However, such stable contexts may not come with emerging opportunities for growth or more promising directions.

These traditional views largely ignore the inherent complexities and ambiguities of the real world and are simplistic in today's dynamic environments. In search of a more realistic picture of managerial work, Mintzberg (1980, 2001) challenges such conventional views by emphasizing the emergent and bottom-up properties of the strategizing process. Mintzberg (1971, 1975, 1980, 2000) implies that due to the unrelenting pace, the variety and discontinuity of the nature of managerial work, there is no real science behind the doing. Contrary to conventional thought, he claims (ibid: B97):

... He [the manager] has been unable to understand work, which has never been adequately described, and he has poor access to the manager's information, most of which is never documented.

Mintzberg (1980) identifies the main characteristics of managerial work (173):

- Managers typically spend brief periods of time on fragmented activities, and are frequently interrupted
- Managers tend to direct their attention to concrete issues and to the most current information, rather than to reflective planning
- Managers spend one-third of their total time communicating with outsiders and one-third to a half of their time communicating with subordinates
- Managers conduct two-thirds of their communication orally, mostly by telephone or unscheduled meetings
- Most of the working day is devoted to interaction with people.

Furthermore, research by Sayles (1979: 12) confirms Mintzberg's characteristics about managerial work:

- Most of the working day is devoted to interaction with people.
- There is sporadic, impromptu and unplanned contact, jumping from issue to issue and between different people.
- Decisions are often the product of complex negotiations, extending over time and involving many interesting parties.
- The multiplicity of goals identified by different groups and people are often conflicting, even contradictory, and priorities often vary.
- Results are often the product of many uncontrolled variables which are slow to emerge and difficult to predict.
- Problems and activities of the manager are often discontinuous and fragmented with no clear beginning or end.

Most interestingly, Sayles implies that irrespective of country or level, all studies on manages seem to produce the same result. This will be especially interesting to keep in mind in this research, as one case study is conducted in the German and US operating units of a company. The following summary of Mintzberg's (1980) view on the manager and the characteristics of the work are especially relevant to kernel of this thesis (In Introna 1997: 25):

> We find the manager, particularly at senior levels, is overburdened with work. With the increasing complexity of modern organizations and their problems, he is destined to become more so. He is driven to brevity, fragmentation, and superficiality in his tasks, yet he cannot easily delegate them because of the nature of his information. And he can do little to increase his available time or significantly enhance his power to manage. Furthermore, he is driven to focus on that which is current and tangible in his work, even through the complex problems facing many organizations call for reflection and a far-sighted perspective.

These characteristics are significant to consider because, assuming they are somewhat an accurate representation of the managerial work, it helps the researcher to identify the forms of information and knowledge in the work processes, and more specifically, the manner in which they are leveraged through IS. This understanding will have implications on the use of IS in practice, and conceptualization of IS in theory.

To characterize managerial activities more precisely, Mintzberg (1980: 169) uses the notion of 'roles'. According to his empirical studies, Mintzberg (1971) implies that managers perform ten basic roles, which he categorizes in three groupings (ibid: B97):

- The *interpersonal role*: manager as external liaison and leader
- The *information processing role*: manager as center of the organization's IS
- The *decision making role*: manager at the heart of the system by which organizational resource allocation, improvement and disturbance decisions are made.

The information processing role comprises of three roles, where the manager serves as the '*nerve center*', the focal point for the movement of information. The other two refer to simple transmission of that information. The following has been extracted from Whyte's study (1955: 187):

> Since interaction flowed toward [the leaders], they were better informed about the problems and desires of group members than were any of the followers and therefore better able to decide on an appropriate course of action. Since they were in close touch with other gang leaders, they were also better informed than their followers about conditions .... Moreover, in their positions at the focus of the chains on interaction, they were better able than any follower to pass on to the group decisions that had been reached.

This describes the manager emerging as '*nerve center*' of internal information, where he may not know the details of every function, but is the information generalist who knows more about the total organization than other members. Specifically, due to the management status he may have unique access to a variety of external knowledgeable outsiders, who are 'nerve centers' at other organizations (Mintzberg 1971). Given this position, MI is said to

be a special kind, where the manager does not hesitate to by pass formal channels to gather it, most of which have not become substantiated facts.

Furthermore, the manager has the role to *disseminate* information to subordinates for making decisions. The nature of this information is usually of factual and value nature (ibid). Hence, a crucial part of this role is to integrate the interests of the general organizational preferences with those of the subordinates as a guide to decisions. The manager acts here as the spokesperson to transmit this information to influencers and other interested parties about his plans (Mintzberg 1971). In the *decisional role*, so Mintzberg, the manager is assumed to have the understanding of complex situations and take responsibility for the organization's actions. Here, he emerges as a key figure in the making of significant decisions in his organization.

Another role of the manager is the *disturbance handler*. While the *entrepreneur* role deals with voluntary change, this role deals with corrections which the manager is forced to make. This happens in circumstances, where disturbances emerge in the organization through a stimulus that cannot be handled routinely by a specialist in the system. Hence, it becomes the job of the manager as a generalist to assume responsibility for dealing with the stimulus (Mintzberg 1971). In one of his studies, Sayles implies the following (1964: 162):

> The achievement of this stability, which is the manager's objective, is a never-to-be-attained ideal. He is like a symphony orchestra conductor, endeavoring to maintain a melodious performance in which contributions of the various instruments are coordinated and sequenced, patterned and paced, while the orchestra members are having various personal difficulties, stage hands are moving music stands, altering excessive heat and cold are creating audience and instrument problems, and the sponsor of the concert is insisting on irrational changes in the program.

Sayles (1964) makes a note on the balance that managers try to maintain between change and stability. The notion of MI from Introna's (1997) interpretation is congruent with Mintzberg's picture of managerial work. To this end, Introna (1997) suggests that MI is a far richer and more implicit concept and argues that there is a lack of fundamental thinking about information as a phenomenon in-the-world. Below is a summary of his interpretation of what MI entails in the world of the manager (ibid: 158-9):

- MI is always already understanding
  - To be informed is to be-in (involved) in an involvement whole in which the report is always already significant
- MI is part of doing
  - MI can never be abstracted from the context of doing.
- MI is always already located, it is contextual, historical and perceptual
  - Information cannot be severed from its context, there is no such thing as understanding from the outside. Meaning is already located within the involvement whole
  - Wittgenstein argued that we cannot transfer language from one language game to another, or from one form of life to another. It must be appropriated within its culture, tradition and communicative context.
  - We understand each other because we already share a history, a context and a perspective, a form of life. There cannot be any sense of an a-historical transfer of understanding from the world of the operations to the world of the management
- MI exists in the world of the manager
  - MI is the know-how of decisions and actions in the fragmented and erratic world of the manager
  - MI may become available in coping and in less than ideal forms
- MI is never complete
  - Managers are constantly working out the possibilities of the data they are confronted with.
  - They are always already in the hermeneutic circle, always interpreting, always striving for room for maneuver. As comportments shift new possibilities come up.
  - There is no final context, the job is never complete.
- MI can never be located in time and space.

- MI is the management understanding
  - Understanding that emerges from sense making in the world
  - Referring to Foucault (1977) that everything is already interpretation. This views understanding as the situated appropriation of communicative acts available to the manager;
  - It is 'a know-how-to that draws upon the sense and significance located in the always already present involvement whole'.
  - Decisions and actions do not flow from understanding. The manager is required to first understand and then act
  - Hence, 'decisions and action are the reification of understanding, which is a primordial already present know-how'
- Management understanding is autopoietic
  - This is based on distinction making (internal coherence) and distinction relating (structural coupling). The former is a tacit process based on doing or using to establish difference. It is unthought, where distinctions emerge as the knowing that is also a doing.
  - These become part of the social change when languaged.
- MI is in-the-world
  - This implies that management understanding is always already present in the network
    of power, which makes it simultaneously local, unstable, and diffuse.
  - Understanding is located in doing of everyday as part of the manager's involvement in-the-world
- MI is an in-order-to get the job done
  - This point implies claims that managers do not execute plans, but rather, their primordial mode of existence is getting the job done using MI. No single information text will lead to insight, the manager will draw on whatever is available.

Notably, his claim comes from a phenomenological standpoint and may be counter argued from different ontological positions. His arguments are based on the following definition (ibid: 156):

> Management information is management understanding in-the-world, in-order-to get the job done.

Introna's argument regarding the lack of fundamental understanding of MI lays out the motivation of this research to interpret MI and knowledge in managerial work with different assumptions than those presented by the mainstream IS literature. Now, knowledge has been an even less clear concept than MI, because of its implicit nature. The next section sheds light on how this ambiguous concept has been discussed in the literature within the scope of this research.

2.2.2 Knowledge-based Capabilities

The knowledge-based view of the firm conceptualizes firms as bearers of tacit, social and path-dependent organizational knowledge (Hitt at al 1998). It assumes knowledge to have economic and strategic implications for the firm (Grant 1991), and views knowledge as the organizational asset that enables sustainable competitive advantage (Alavi & Leidner 1999). The premise has been to build 'distinctive' capabilities' through specialized knowledge to ensure sustainable competitive advantage (Drucker 1995). Specialized knowledge and activities are seen to set the basis of a platform, which collectively create organizational capabilities (Grant 1996). Andreu and Ciborra (1996) argue that what makes the capabilities unique is the high dependence of organizational context and specific organizational routines in the path-dependent learning process. In other words, because knowledge emerges through the process of learning, it is embedded in organizational routines. Therefore, it has a strong tacit dimension, which makes it difficult to imitate and change (Nelson & Winter 1982; Grant 1991). The difficult-to-imitate nature of tacit knowledge is distinguished from other resources because it is protected by knowledge barriers, similar to those that are protected by property rights and exclusive ownership capital (Teece 1998; Zack 1999).

Koontz (1964) depicts managerial knowledge as 'the art of getting things done through and with people' (1964: 15). Davenport and Prusak (1998) provide a pragmatic 'working definition' that is relevant to the scope of this thesis (1998: 5):

> Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.

In the literature (e.g. Davenport & Prusak 1998; Hansen et al 1999; Alavi & Leidner 2001; Earl 2001) and practice, a dominant tendency has become to manage this knowledge and become knowledge creators rather than processors of information, and to create a 'knowledge base' (Johnston & Vitale 1988). In order to understand the process of managing knowledge, according to Sanchez (2001), first we must identify the various forms of knowledge in an organization. For example, the literature distinguishes between 'explicit' and 'tacit' knowledge (i.e. Nonaka & Takeuchi 1995). Explicit knowledge is argued to be based on formal models and embedded in procedures, documents and databases may be

transferred with reasonable accuracy (Hustad 2004). On the other hand, tacit knowledge is referred to as mental models and experiences of individuals, which is difficult to communicate on a similar accuracy level (Bourdreau & Couillrd 1999). Tacit knowledge involves a cognitive and a technical element, both of which are important in the process of knowledge sharing (Nonaka 1994). The former refers to the idea that by creating and manipulating analogies in their minds, people build working 'mental models' of the world in the form of schemata and paradigms to provide a perspective of their world. These mental models, paradigms, perspectives, beliefs, and viewpoints, help human beings create sense-making analogies to relate to the real world (Nonaka & Takeuchi 1995: 60).

Tacit knowledge has been at the centre of debate in recent years because of its intangible and context-specific nature, which may provide the highest potential for competitive advantage. The sharing and transfer thereof has been particularly difficult on the strategic level, where the level of tacitness of everyday knowledge tends to be higher than on the operational level. The more implicit knowledge becomes, the more it is influenced by the informal influencing factors such as cultures, paradigms and ways of thinking. Hence, the accurate communication of that knowledge will depend increasingly upon the manner in which it is communicated, not just the content of the knowledge. On the other hand, the phenomenological perspective views knowledge as deeply embodied and embedded in our body, practices, as well as in institutions and material structures (Hanseth 2004). Hanseth (2004) views knowledge as 'being highly embedded in a complex web of relationships and dependencies, where it is difficult to change one part without the other' (2004: 110). Polanyi (1966) defines knowledge as 'an activity which would be better described as a process of knowing'. Furthermore, Heidegger (1962) illustrated knowledge through *Dasein* ('being') to bring the relationship between knowledge and action closer.

Overall, knowledge is defined to be context-specific and anchored in the beliefs and commitment deeply rooted in individuals' value systems. As opposed to information, knowledge may be seen as a cognitive process of interactions of the individual's internal believes, perceptions, 'instinct', and sense the market 'climate' (Nonaka et al 1994). Nonaka and Takeuchi (1995) argue that knowledge is created through the dynamic process of social interactions in specific contexts at specific times. Further conceptualizations of knowledge include Blackler's (1995) five types of knowledge: embrained, embodied, encultured, embedded, and encoded. Embrained knowledge refers to individual conceptual skills or

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cognitive abilities, where as embodied is the ability to carry out specific actions. Achieving a shared understanding in groups and organizations describes the encultured knowledge. Encoded is the explicit knowledge represented in the written language, such as books and digital information from data bases and web sites. This thesis will frequently refer to embodied and embedded types of knowledge, while the other will be implicitly referred to. Furthermore, an integrated perspective considers tacit and explicit as mutually constituted and dismisses a total separation since tacit knowledge is a necessary component of all knowledge (Tsoukas 1996).

Part of the controversy lies in the differences between philosophical and more pragmatic perspectives on knowledge. What philosophy attributes to tacit knowledge does not make it easy for practitioners to create ways in leveraging it for competitive advantage. More specifically, the term tacit knowledge originates from Polanyi (1958), who describes it as 'hidden': 'We know more than we tell' (1973). He argues that tacit knowledge involves the process of comprehension, which is largely an inexpressible process. Polanyi (1958) defines tacit knowledge as an act of comprehension, which is achieved through the process of creating knowledge of the world via 'indwelling'.

Notably, Polanyi's argument takes place in a philosophical perspective. Polanyi speaks of tacit knowledge as *Personal Knowledge* (1966), which is part of the human agent. Wilson (2002) suggests the use 'implicit' knowledge as a more appropriate term when speaking of knowledge which is normally not expressed, but is expressible. It is that which may be taken for granted in actions but is shared among people with common experience or culture. For example, the knowledge of 'how things are done here' may be communicated, shared and taught. This is the point of departure to reflect more on the human agent to understand better the nature of knowledge, its embedded-ness and use in strategizing processes. This will bring us closer to understand how IS are (or may be) used to turn this ambiguous concept into potential competitive advantage.

2.3   PERSPECTIVES ON STRATEGIC ACTORS

*'Managers need not only specialized knowledge, but they need wisdom
which is the ability to weave knowledge together and make use of it'*
-Mintzberg (2001)

A richer understanding of human agency is important because the purpose of IS, simply said, is to serve human agents to work more effectively and efficiently. Most research on the role of human agency has been predominantly from a positivistic tradition, viewing IS and the human agent as separate entities. Further, IS has been predominantly IT-oriented and the human a rational and deliberate agent. The relevance of this section to this thesis is that in order to achieve a richer conceptualization of IS in the context of strategizing, one needs to understand the world of the manager. The work by Gosling and Mintzberg (2003) and managerial mindsets, and the work by Chia and Holt (2006) and Introna (1997) based on phenomenological assumptions provide some competing, but especially interesting views on the human agent.

2.3.1   Managerial Mindsets

This section makes reference to the work of Gosling and Mintzberg (2003), and Mintzberg and Westley (2001) on managerial thinking and mindsets in strategy making. As a general note, the term mindset refers to an attitude, or ways of thinking. Managerial mindsets resulted from their work, where they found that certain qualities would make managers more effective in dealing with everyday strategizing work. There, Mintzberg and Westley (2001) proposed two other forms of decision-making in addition to the rational model, or 'thinking first', to use their term. These are labeled as 'seeing first' and 'doing first'. The assumptions behind the term 'thinking first' are in line with the traditional view on deliberate decision-making that has been discussed throughout this chapter. The 'thinking first' assumes that managers apply rational thinking first before any other approach (ibid).

A general problem with rational approaches is that once deliberate decisions are made, some new event forces a reconsideration of that decision, leading to new insights, and a new decision. This process of continuous re-consideration of deliberate decisions repeats itself, and by the time of execution, the original decision is hard to track back. As a result, they propose two other approaches to strategizing. The argument for 'seeing first' implies that understanding is not only conceptual, but also visual, a significant element to consider

when looking at decision-making theory (ibid). This implies that decisions are driven as much by insight as they are by thought. At the same time, in order to trust insight, or vision, decisions require a certain experience and confidence, as well as the authority to elaborate on a subject vision that is not based on logic entirely, or hard facts. Moments of illumination happen in a visual form, where the person has a tacit grasp of a way forward in her/his mind – something that would take a long time to explicitly express it in words. This tacit process of discovery is also informed by the Gestalt psychology (Wallas in the 1920s). Envisioning or thinking of the 'solution' depends on the context and may not occur to every experienced manager. To those that neither applies, the seeing or the thinking, as Mintzberg and Westley put it, they just get on with it and do 'something' and the thinking could follow' (ibid: 91).

The term 'doing first' comes from organizational theory, where Weick (1979, 1995) theorized this process as enactment – selection – retention. A relevant reference to this discussion is his work on sense-making in organizations. In this context, it highlights how the creation of reality occurs when people make retrospective sense of their past situation. Weick makes reference to ambiguity and uncertainty in the sense-making process.   In relation to 'doing first', Mintzberg and Westley (2001) imply that effective managers know that sometimes it makes sense to act (first) and experiment in order to think. Of course, while this behavior occurs to everyone in situations of uncertainty, doing 'the doing' skillfully as to learning what the core competencies are in order to extract and repeat them in the future may not be as common. This argument suggests that engaging in 'thinking first' as it is in formalized strategic planning may in fact discourage learning and the core competencies may not be discovered.

Mintzberg and Westley (2001) correlate the three terms to the conventional views of science, art and craft, where the first is primarily verbal and prefers facts, the second is visual and prefers ideas, and the third is visceral, preferring experience:

'Thinking First'	'Seeing First'	'Doing First'
Science	Art	Craft
Planning, Programming	Visioning, Imagining	Venturing, Learning
The Verbal	The Visual	The Visceral
Facts	Ideas	Experiences

Figure 2.2: Characteristics of the three approaches to making decisions (Mintzberg & Westley 2001)

While it is not the purpose of this research to explicitly apply these in the case studies, it is useful to keep them in mind and how they may affect the manner in which information and knowledge are used in strategizing.

In a later work, Gosling and Mintzberg (2003) focus more on the cognitive aspects of human agents and propose several managerial mindsets under five categories. This work was in response to observing managerial concerns about how to reconcile contradictory demands in managerial work and strategic decisions. Some of these contradictions are, for example, demands of being global and local, to collaborate and compete, and to 'make the numbers' while nurturing the people. While these may not seem unusually new, the challenge of being or acting in ambidextrous (O'Reilly & Tushman 2004) manners in strategizing, to meet deliberate demands while coping with emergent needs, on a continuous basis, is a challenge that has not been sufficiently addressed in the literature – particularly from the perspective of the strategic actor.

Mindsets refer to a set of attitudes, or directed consciousness, towards self, the world, and the constituents. These are influenced by many factors such as personal frame of reference, experiences, education, functional background, and other personal attributes have significant effects on their decisions and action. The dominant and combination of various mindsets has implications on the ways in which knowledge is used and decision processes handled in various circumstances and contexts. Gosling and Mintzberg (2003) introduce their work with an emphasis on synthesis of mindsets, rather than their separation. The reason that this might become significant to this research is that different mindsets determine the assumptions behind interpretation of information and sense-making. There seems to be little research which associates mindsets (as of attitudes) with the use of IS, and how IS are shaped in strategizing processes.

Gosling and Mintzberg argue that the problems that most managers in organizations face are a result of either too much action and little reflection, or too much thinking and slow response to changes. This becomes especially problematic when the differing attitudes happen among functions or business units, for example, where the marketing department is swift in creating new strategies but the sales force is slow in execution. Gosling and Mintzberg claim that the effectiveness of managers is somewhere in between action and reflection: 'action without reflection is thoughtless; reflection without action is passive' (ibid: 56). They suggest in order dealing with contradictions in the everyday strategizing

work, managers should apply a combination of different mindsets according to the situation. Below is an outline of the mindsets, which will be kept in mind during the case studies as to how these are related to the use of IS in strategizing.

The reflective mindset: Managing self   The Latin word for 'reflect' is to refold, meaning that attention turns inward to see better the outer world in order to perceive a familiar thing in a different way. This mindset argues that managers should stop and think, and reflect upon their relationship with the world. Only by reflecting and digesting the events that happen to us can one create lessons learned and turn them to experiences. This allows one to see 'both ways', inside our own world and the outside world. This way, the 'reflective manager' can increase the chances of creating vision. This may be conceived as consciously painting a picture of the past experiences stroke by stroke (Gosling & Mintzberg 2003). This implies that the person creates a healthy respect for history, and one 'must appreciate the past in order to use the present to get a better future' (ibid: 57).

The analytic mindset: Managing organizations   The analytic mindset decomposes complex phenomena and breaks them into its constituent parts. This attitude towards the world suggests 'let loose' (cf. the Greek root of the word *ana-* meaning 'up and *layein* meaning 'loosen'). Whenever one adopts this mindset, one does not see people as individuals, rather one sees things from the outside and from above (e.g. viewing them as systems of organization power and communication). They view themselves as on top of the organization, making complex decisions, being involved in the coordination of all kinds of subsystems and networks, with the only object being to meet bottom line goals. While this may be important, so is the management of organizational and social complexities in order to maintain the capacity to take consistent action.

The worldly mindset: Managing context   This implies a certain attitude towards the over-used and often misconceived term of globalization, misconceived because the concept encourages certain assumptions of the world that may lead to homogeneous behavior. At a distance, it may imply that the world is uniform, enabling generalizations to be made about markets, values, and practices. It assumes that the world is converging towards a common culture, and that the global headquarters are responsible for local consequences. However, and paradoxically, the more we connect with the rest of the

world, the more we realize different cultures, circumstances, ways of thinking and interpreting. Consequently, the overuse of 'becoming global' may have the implication that decisions are based on assumptions that there are homogenous world views. Hence, the term 'worldly' instead of 'globally' may be used to consider assumptions of a richer and realistic world, which has different cultures, different ways of doing things, and different local political and economic consequences (Gosling & Mintzberg 2003: 58). This perspective encourages an exploratory mindset, which brings one closer to the context and helps to develop more realistic assumptions about the world.

The collaborative mindset: Managing relationships   Recent rhetoric from the management literature views collaborative mindsets as the commitment to manage relationships among people in teams, projects, and across division and alliances. The emphasis shifts from top-down management to a more engaging, worldly, fostering, collaborative and less controlling approach. Leaders are those who foster an environment where knowledge sharing can flourish, helping 'to establish the structures, conditions, and attitudes through which things get done' (ibid: 60). The emphasis is on networks, social systems, teams, alliances and knowledge work. Those who attempt to manage relationships from the 'top' are outside of the knowledge network. To create a collaborative environment, one should manage from the inside, bottom-up, and allow responsibility to flow naturally among self-managing teams.

The action mindset: Managing change   This is about developing sensitive awareness of the changes in the terrain and orchestrating the process towards a direction. The overemphasis on change has forced managers to focus on what is changing instead of what is not, on continuous action rather than reflection on consequences. The implication of this 'obsession' with change (ibid: 61) creates a world for the manager that is in constant flux and urgency. This view shapes the assumptions on which decisions are based. The challenge lies in managing continuity rather than change: knowing what needs to be changed, mobilizing energy round those things, and maintaining the rest. This implies the balance between exploration for new opportunities and exploitation of current capabilities. Action-oriented management of change is Cartesian, where top management formulates carefully planned deliberate strategies and systematically implements those through a sequence of decisions. These are clear and bold, calculating, and based on facts. Although many managers oppose this mechanistic and rationalistic view, some tend to behave

differently in action. Is it because they do not know how to manage otherwise (lack of training or habits), or the context and structure within which they make decisions does not allow room for a reflective mindset and collaborative action.

In conclusion, the unstructured and indirectly linked elements (i.e. behavioral aspects) that are inherent to strategizing require the human agent to adopt multiple mindsets in the coping with the world. While the arguments in this section are rooted in the strategic management literature, the next section will shed light on an alternative ontology based on the 'being' mode of the manager in the world. This philosophical angle will be profoundly different from the previous discussions, yet somehow complementary on a deeper level. It is this contrast, which is argued to be intriguing in supplementing the interpretive process of this research, rather than adhere to either the strategic management or the philosophical point of views.

2.3.2 Alternative Perspectives on the Manager

Thus far, the thesis has been interested in looking at the interrelations between strategizing, IS, and human agents. This section offers an alternative understanding of the human agent in the hope to shed a different light on their relationship with IS within the strategizing context. While the previous section referred to characteristics close to the conscious manager, this section introduces concepts underlying the 'involved manager' (Introna 1997). This notion is based on the seminal work of Heidegger and Polanyi, based on the conceptualization by Introna (1997). Notably, since this study is not rooted in phenomenology, any interpretation will be within the scope of Introna's and Chia and Holts' conceptualization. Further, the involved manager is interesting in relation to the previous discussion on managerial mindsets. They are not meant to be compared to each other (as the mindsets were not meant to be analyzed on the philosophical grounds), but rather each of them provide a different understanding on the human agent in *praxis* that we like to keep in mind.

Strategizing as Dwelling

The mainstream IS literature speaks of the manager as the strategic thinker and deliberate user of strategic IT, who engages in effective and efficient problem solving. S/he can take

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calculated risks and be in control of activities through the exploitation of IT. Chia and Holt (2006), however, argue for a *relational* re-conceptualization of human agency rather than an institutional or entity-oriented term (Cooper 2005). The premise behind their argument is that when actors deliberately engage in strategic activities, there is actually a more basic 'dwelling' mode from which the strategy emerges in a non-deliberately way through everyday practical coping. Here, the agent and their strategies are 'simultaneously co-constructed relationally through direct engagement with the world they inhabit' (ibid: 637).

Strategy from the dwelling perspective does not require an intention or purposeful goal-orientation. Rather, they view strategic 'intent' as *immanent* in every adaptive action (ibid). They argue that observed consistencies in actions can be explained through a *modus operandi*, an internalized disposition to act in a manner congruent with past actions and experiences. This will turn out to be a significant point when we examine the relationship between strategizing and the use of IS in practice. Chia and Holt argue: 'Explaining strategy in dwelling terms enables us to understand how it is that actions may be consistent and organizationally effective without (and even in spite of) the existence of purposeful strategic plans.' (ibid: 635). Within this context, practices are conceived as identity forming and strategy setting activities in which events and meaning compose one another (Schatzki 2005). Furthermore, the supporting argument implies that practices are learnt from others, where individually administered learnings occur through an ongoing sensitivity to what other practitioners are doing (Barnes 2001: 26).

The conceptualized of agency and action revolve around the term 'relationality' (Cooper 2005) from social theory, which is used as a way to theorize towards new paradigms of understanding and as fundamental explanatory basis of social phenomena. Relationality refers to the methodological priority given to relationships and action. Here, individual and organizational entities are seen as 'manifestations of a latent movement which is distinct from any aggregative sum of parts' (Cooper 2005: 1693-1698). In other words, relationalism is used to conceptualize strategy as dwelling by acknowledging the latent primacy of relations and practices over the individual or organization. Chia and Holt (2006) use relationalism to explain human actions in terms of a 'mindless' practical coping, a state of self absorbed involvement with the world which precedes any mental content, reflection or symbolic representation. Along this line, it is argued that over time, a certain consistency

of action emerges despite the lack of intention or an overall plan (Chia & Holt 2006). Hence, they put action and interaction at the centre of social analysis.

The Involved Manager

In this context, the manager is believed to always already be involved in-the-world. The underlying assumptions behind this ontological position are discussed by Introna (1997). The character of 'involved' (versus 'rational') are related to Heideggerian ontology of *Being and Time* (1962). Some of the relevant concepts underlying this ontology are reviewed in this section, notably, only within the scope of this research. The table below compares the different underlying assumptions of the manager:

	Involved Manager	Rational Manager
Mode of being	Available	Occurrent
Comportment	Getting the job done	Effectiveness and efficiency
Purpose of information	Sense (re)making and alliance building	Decision-making and problem solving
Action imperatives	Local logic and 'bricolage'	Plan and control
	Doing-thinking	Thinking then doing
	Opportunistic	Calculated and reasoned
Knowledge resources	Tacit knowledge	Representations
Key assumptions	Thrown-ness	Autonomy
	Networks	Linearity

Figure 2.3: Two ontological views on the manager (Introna 1997: 173)

The two modes of 'being' underlying the dichotomic view on the manager are based on Heidegger's concepts 'availableness' and 'occurrentness'. In terms of strategy, these related to 'dwelling' (based on 'availableness') – and to 'building' of strategy (based on occurrent) (Chia & Holt 2006; Introna 1997). The involved manager provides an interesting ontological position to the knowledge work of strategic actors. The concept assumes that managers' actions and decisions are inseparable and cannot be understood by isolating them (Introna 1997). They find themselves *thrown* (see definition below) in a world from which they cannot escape. The prime knowledge resource is applied *tacit knowledge* in order to make sense of the world and in getting the job done, through bricolage (cf. Levi-Strauss), that is. It is within the doing where the manager thinks. The involved manager also understands that at any moment opportunities may change the whole moves and rules of the game, hence, it is less likely s/he can think strategically and take calculated risk. Furthermore, s/he assumes that the probability of expected and unexpected outcomes of

every decision is unknown, and that any unexpected outcome changes the assumptions of the initial action or decision.

The analysis is rooted in Heideggerian (1962, 1988, 1992) views and is congruent with the philosophical notions of Polanyi's 'personal knowledge' (1958) and Gadamer's hermeneutics (1977). Below is a review of the relevant concepts underlying the involved manager as of their interpretation by Introna (1997). But first, it should be reassured that the researcher appreciates the complexity and depth of each of the Heidegger's concepts mentioned in this research. However, a discussion of the deeper philosophical underpinnings would go beyond the scope of this thesis.

Dasein, or *being-in (*the world), refers to the existence of the manager in the world. Heidegger (1962: 67) states that 'the 'essence' of *Dasein* lies in its existence'. In other words, since we do not doubt our own existence and *know* that we *are,* there is an element of is-ness to our being (Introna 1997: 28); we are always already involved in the world. Hence, ontologically, the manager may be viewed as *Dasein,* and always already *in*volved in the world. The emphasis on 'in' implies that when the manager is in-volved in the world, s/he is immersed and cannot step out, or step back. There is a more primordial, or an existential sense, of 'in'. This ontic mode of existence in the world implies that we are already concernedly absorbed and immersed in the world. Hence, *being* in the world is a sense for our existence in the world, a being who already understands itself. However, it understands itself only in the sense of knowing what it means to be 'in' and does not imply that it is a self-conscious subject. This *being* is always *already available* and *ready-to-hand* (Introna 1997: 28). Furthermore, *Dasein* implies that we are in the world by inhibiting, or dwelling in it such that 'is is no longer an object or us but becomes part of us and pervades our relation to other objects in the world' (Dreyfus 1991: 45).

Dasein conceives decisions and actions as always already based on prior involvement whole. The involvement entails that managers cannot distance themselves from the problem situation in order to understand their problems- understanding is achieved while *being* *in*volved in the world. The involvement whole is explained in terms of a set of already there relationships (Introna 1997), where systems, people and elements from the context introduce relationships which makes any specific involvement significant and creates this 'for-the-sake-of-which' or 'in-order-to'. This humanistic perspective is not 'what is and

what is not', but rather an inauthentic mode of understanding, on its own home-ground as being-in-the-world (ibid: 27).

Zuhanden (Ready-to-hand)   Zuhanden implies that the world is available, or ready to hand. More specifically, the ways in which human agents interact with the world in their directedness is with that which is nearest in our everyday existence. Heidegger (1962) calls the things we use in the world *Zeug*, or equipment. We use such equipment as these by 'manipulating them and putting them to use' (ibid: 95). This equipment is described as 'something-in-order-to' (ibid: 97). This is directly relevant to Polanyi's work on the embodiment of tools, discussed below. Zuhanden is related to the managers' work in that in the everyday dealings and coping, mangers' concerned involvement with the things around them they create the possible clearing within which the thing reveal themselves in their use. It is through 'that kind of concern which manipulates things and puts them to use' (ibid: 95).

Verhalten   Existentialists imply that we are directed in our being in the world, or we comport (*Verhalten*) ourselves towards beings. Heidegger (1988:58) states: 'comportments have the structure of directing oneself toward, of being directed toward'. In other words, we exist in such a way that is always already with other beings. If so, then the manager does not think about the world and then formulates objectives (intentions) to direct actions in that world (Introna 1997) because the manager is always already 'directed' in the world. Introna argues that the notion of objectives becomes merely a construction to articulate comportments which already exist in action.

Thrownness   With the concept of *being always already in the world*, Introna (1997) adds Heidegger's notion that man is *thrown* in the world. The concept of thrownness implies that we do not have a choice in choosing the circumstances and environment in which we are born. We are thrown in this world and the aim of *Dasein* is to resist the forces of 'they' and strive to be authentic. How is this related to the decision-maker, or strategizer? *Thrownness* refutes the concept that individuals can rationally select ends and means to achieve objects. It also refutes that we can make right decisions at the right time, or be at the right place at the right time. This has tremendous implications on the ways in which strategizing may be interpreted. Since one is always in an inseparable relationship with the world, and always already involved in the whole, thrownness will turn indecision

into decision, inaction into action (ibid). *Thrownness* also opposes the belief that in order to achieve a purpose, one only needs to make the *right* decisions at the *right* time (ibid). The choice over decisions and choosing the right time is not possible because one is always already in an inescapable relationship with the world. At the same time, Heidegger does not imply that we are guided by some outside force. *Thrownness* does not have a teleological connotation, but rather all it implies is that one cannot step outside a situation one is already in to change something of the whole, if one is already an embedded part of that whole.

Personal Knowledge

The IS literature recognizes that personal knowledge is at the heart of what managers do (Introna 1997). Polanyi's (1966: 1973) *personal knowledge* may be drawn upon to reflect on the tacit dimension of the strategizing work as actors interact with the wider socio-technical and political environment. Expanding on earlier sections, the notion of tacit knowledge implies that actions are based on that knowledge, which is personal, or embodied. Polanyi uses the idea of *subsidiary* and *focal* awareness in explaining the notion of tacit knowledge. Basically, in performing a task, there are certain aspects of the task that are in the foreground (focal) and some that are in the background (subsidiary) of our awareness. For example, when one is entering a room, the room and the intention for entering are the focal awareness, and the door and its opening are tools that one needs to use in order to enter are in the subsidiary awareness (Introna 1997). Since these tools are in the subsidiary awareness, one is usually not consciously aware of them because they are mere vehicles, with the focus being directed to just entering the room – the focal awareness. These two levels of awareness are said to be mutually exclusive, meaning that one can focus on one at a time.

Polanyi (1973: 59) states that 'our subsidiary awareness of tools can be regarded 'as the act of making them form a part of our own body ... we pour ourselves out onto them and assimilate them as part of our existence'. This leads to the notion of *embodiment* of tools (Polanyi 1973), which implies that we are subsidiarily aware of something, i.e. the tools one draws upon to enter the room, when it is a part of us, an extension of our body, or when it is embodied (Polanyi 1973) – similarly, feel in the act of walking, or hands in the act of touching. The implications of the *embodiment* are that it contradicts the belief that knowing is a rational act where one builds frameworks and applies them as procedures for actions,

decisions and judgments (Introna 1997). Rather, it is the attempt to gather certain particulars as extensions of our body, such that they become an embedded part of our subsidiary awareness to build a coherent focal entity. Nevertheless, 'until this [the notion of personal knowledge] is addressed information systems will never become part of the manager's body, judgments or actions' (ibid: 40).

Relating the abovementioned concepts to the manager have significant implications on the ways in which IS are conceptualized in strategizing. Some interesting questions arise in regards to the purpose of strategizing, which may be too complex to be addressed in the scope of the thesis, yet will be kept in mind. For example, if the manager is a prisoner to the organizational whole (i.e. information infrastructure (II)) and finds it impossible to set goals, then what is strategizing for? How may one leverage IS, if strategic actors are imprisoned within the II? If one cannot consciously use the right information and leverage resources, and that at the right time, then how can the strategic actors behave competitively? It is hoped to unveil these questions in this research process.

CHAPTER SUMMARY

This chapter set out the context of this research by reflecting on strategizing, MI, knowledge, and the human agent from competing perspectives. The purpose of this discussion has been to provide solid conceptual grounds for an unbiased view on strategizing and human agents. The strategic actor was discussed from the 'rational' view, the expert, the 'master of the ship', who efficiently and effectively meets objectives and always strives to outperform. At the same time, this section argued that human agents are merely prisoners to their own existence, and cannot choose 'the right mindset at the right time' in strategic decisions. Nevertheless, these views, although they might seem contradicting at first, help the research process in adopting a more critical view.

Section 2.1 positioned the thesis in the process-view on strategy, hence strategizing. More importantly, it made explicit the debate on deliberate versus emergent approaches to strategy, where it was argued that the desire to consolidate the two approaches is a major challenge in organizations. The underlying assumptions of strategy (as of top-down or bottom-up) will have implications on the manner in which strategic actors use IS.

Section 2.2 discussed the constituent parts of strategizing, i.e. MI and knowledge as main ingredients of the process. This overview served as a background to the discussion that follows in chapter 3 on various aspects of an II as well as various strategies towards IS in the context of managerial strategizing work.

The last section reviewed the human agent from business-oriented literature as well as a more philosophical-oriented view. The latter perspective challenged the positivist-based view on strategizing and actors. Indisputably, different ontological views result in different interpretations of reality.

While this discussion seemed to have only emphasized the differences of perspectives on the concepts, the actual motivation of this research is to suggest that most of these competing perspectives on strategizing and the human agent may indeed be complementary; in other words, we understand them better only when we consider them as parts of the same involvement whole. It is hoped to suggest a new angle to view these well-established concepts by showing their integrative nature, rather than their separation. The next chapter embraces the organizational context in terms of their socio-technical IIs and various approaches to information system (IS).

CHAPTER 3   INFORMATION SYSTEMS

This chapter reviews key information systems concepts
in the wider organizational socio-technical context.

3   INTRODUCTION

While chapter 2 addressed the *'what'* (process of strategizing), the *'why'* (effective and efficient decision-making), and the *'who'* (strategic actors), this chapter concerns the *'how'* in terms of the role of IS in the wider organizational context. The multi-disciplinary view towards IS invites the inclusion of socio-technical elements of an information infrastructure (II). This is argued to provide the context for information and knowledge sharing, ongoing learning (OL) and the shaping of organizational memory (OM). Organizational culture is also seen as an important influencing element.

An examination of IS in strategizing leads us to refer to deliberate versus emergent uses of IS. This topic has been widely discussed in the strategic IS (SIS) literature. Hence, it is necessary to introduce the arguments that the SIS is making on IS. While there is an attempt to discuss the elements in a linear fashion, the interconnectedness of themes may bring up topics whose interrelationships are explored in an intermingle fashion.

3.1 STRATEGIC INFORMATION SYSTEMS

A major area in IS has been how to achieve competitive advantage through the strategic application of ICTs (Porter & Millar 1985; Barney 1991; Grant 1996a; McFarlan 1984; Ciborra 1994). Specifically, the knowledge-based competition encompasses the idea of using knowledge as sources of differentiation (Marchand 1998; Grant 1996). The ambiguous and intangible nature of knowledge makes its use and management more challenging than data and information (cf. chapter 2). Davenport and Prusak (1998) argue that information and knowledge are not only embedded in organizations in the form of documents or repositories, but also in organizational routines, processes, practices, and norms. The critical question is *how* organizations should organize themselves to employ existing and new information and knowledge to learn effectively and adapt to changes.

The desire for strategic differentiation concerns the development of resources that are valuable, rare (Porter & Millar 1985; Barney 1991), imperfectly imitable, with no strategically equivalent substitutes (Andreu & Ciborra 1996). Ciborra (1997) suggests that companies should make use of their distinct characteristics, unique sources of practice and knowledge so that imitation becomes harder. However, not all managers understand the dynamics involved in the flow of information through the organization, and how this affects decision-making at higher levels. Especially at global organizations, this is a major aspect that requires investment of time, attention, financial recourses, and teamwork of experts.

The SIS planning literature argues that the application of IS and technologies may be directed towards meeting business objectives as a way to potentially create competitive advantage (Earl 1989; Sanchez & Heene 1997; Winter 1988). Specifically, this idea led to the notion of 'strategic alignment' of an organization's systems and IT strategies with its business strategies (Henderson & Venkatraman 1993; Venkatraman et al 1993; Kearns & Lederer 2000). According to Henderson and Venkatraman (1993), the concept of linkage has been historically invoked as a metaphor to argue for the integration of business and information technology strategies. This implies that competitive strategies and organizational infrastructures should 'fit' the external and internal factors influencing the firm (Chandler 1962, Child 1972, Porter 1980).

Earl (1989, 1993, 1996) distinguishes between IT and IS strategies. While the former focuses on information and systems requirement to meet business objectives, the latter is concerned with specifying the technology and delivering relevant applications. Earl argues that IS strategy can be conceived as business-led and demand driven, essentially a 'top-down' process. He argues that IS strategy should be the concern to top managers, not just to the IT division. Conversely, IT strategy is seen as a 'bottom-up' process, where it is more technologically- and supply- driven. This implies that IT strategy depends on the already existing IT infrastructures and it is much more within the province of the IT directors. The aligning of these IS/IT strategies with business strategies have been prophesized to positively influences IS effectiveness (Porter 1991; Porter & Millar 1985; Galliers 1991; Ciborra 1997) and to improve business performance (Weill & Broadbent 1998). Conversely, the lack thereof will lead to a failure to leverage IS and hamper performance.

IT Infrastructure, IS applications and services

IS Strategy (What?)
- Business-driven
- Top-down
- Demand-oriented

Information and IS services requirements

IT Strategy (How?)
- IT-focused
- Bottom-up
- Supply-oriented
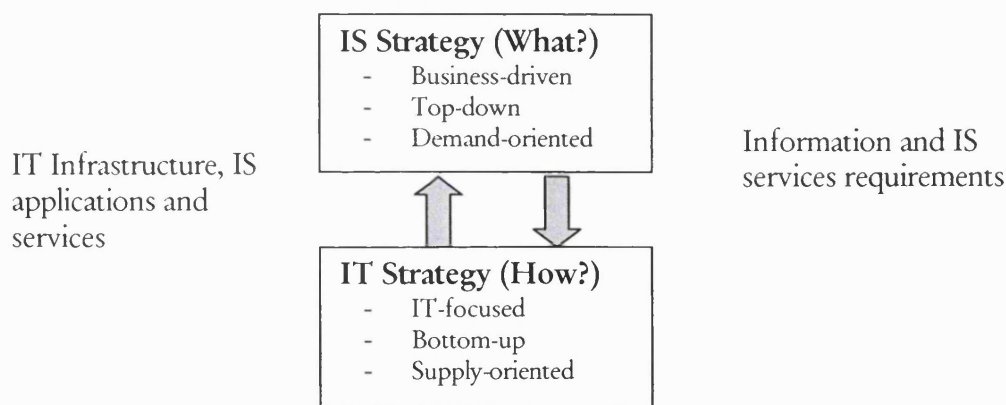
Figure 3.1: Distinction between IS/ IT strategy (Earl 1989)

At the same time, Earl points out some implications that arise in the attempt to align these strategies. With regards to the notion of achieving a 'fit' between IT strategy and business strategy, some IS researchers suggest that it is not appropriate to assume the IS strategic alignment will improve IS effectiveness and organizational performance (Hackney et al 2000). For example, Hackney and colleagues point out a flaw in assumptions that IS/IT and business strategies can be aligned in the first place. First, most of the difficulty arises from the very nature of strategy itself. Chapter 2 noted strategy as emergent (Mintzberg & Waters 1985) and continually changing (Pettigrew 1985). IS strategies are also seen as being on-going and processual (Galliers 2004; Ciborra 1997). Conversely, IT applications require a strong element of stability and predictability (Hackney et al 2000). Hence, since IT strategies are relatively fixed and IS strategies are not, there have been difficulties in

applying prescriptive IT approaches to a strategic IS and business alignment. The complex and diverse nature of the strategy process makes it difficult to achieve an alignment with IT strategies in the continuously evolving business environments. Another assumption that underlies the strategic alignment is that IS strategy and business strategy are seen as different and separate entities. As Hackney and colleagues (2000: 8) put it, IT is seen as something which is 'bolted on' as opposed to an integral part of business strategy. A challenge here lies in providing a transparent relationship between the two, where systems are developed at the center of the business.

They further point out an irony around the supply oriented application of strategic IS. While strategic IS planning encourages (or assumes) organizational integration, the end result is more often a reactive one, to coordinate what results have been achieved rather than a proactive one, reaping the rewards of synergy from the integration of business processes. Instead of the IT allowing business strategies to flourish, often, it is the IT that takes the dominant role and sets the rules. According to Hackney and colleagues, the challenge is that the IS/IT strategy itself must be dynamic in order to be congruent with the needs of a business strategy. Consequently, if IT systems are not flexible enough they will impose constraints to the business strategy process itself, leading to restrictions rather than competitive advantage. For example, the adoption of Enterprise Resource Planning (ERP) models requires the organization to adapt business strategies to 'fit in' with the technological infrastructure of i.e. SAP packages. Here, SAP is the component that defines the business model and the decision making process in order to fit in the model (Galliers & Newell 2003; Newell et al 2003). On a positive note, since ERP are indeed setting the rules for how business strategy and the associated IS/IT are to be set, they may provide stability to organization.

The implications are often due to the assumption that implementing appropriate IT will automatically lead to competitive advantage. When all organizations join the bandwagon, however, IT becomes a commodity and as a result, these organizations would need IT for mere survival instead of exploiting it for competitive advantage (ibid). Having said that, technology, by itself, does not create sustainable competitive advantage (Galliers 1991). Hackney and colleagues (2000) argue that it is the process capabilities that should be strategic to business, not IS per se.

To this end, IS perspectives take into account the significance of people as key players in the ever-changing socio-economic and technologically environments (Bostrom & Heinen 1977). The socio-technical approach (Mumford 2000; Monteiro & Hanseth 1996) implies that over time, the dynamic interplay between culture and technology should result in a socio-technological system that produces certain attitudes and behavioral patterns towards organizational knowledge stored in them in different cultures (Ciborra & Andreu 2001; Desouza & Evaristo 2003; Davenport & Prusak 2000). Viewing IS as a socio-technical phenomenon has implications on the understanding of organizational dynamics and associated activities, people, technologies, networks and cultures.

3.1.1 Culture

Culture plays a major role in how information is interpreted, shared, stored as memory, and reused in decisions at globally operated organizations. There are many studies on cultural influences on organizational processes, and on the way in which people use IS in organizations (e.g. Orlikowski 1992). Two main cultural classifications are especially emphasized in the literature: organizational culture and national culture. For example, Gannon (1994) found that 25 to 50 percent of an employee's behavior is culturally determined. Schein (1985) defines culture as a learned way of perceiving, thinking and feeling about problems that is transmitted to organizational members. A widely used definition of culture in the IS literature is Hofstede's (1991) collective programming of the mind. Hofstede (1980, 1991) asserts that there are several shared values, beliefs and norms that are culture specific (ibid). These determine the managerial paradigm, which influence decision-making and strategizing styles.

Trompenaars' work (1993) also identifies a linkage between national culture and how decisions are made and at what level in the organization. Generally, whereas cultures that are more collectivistic in nature tend be more attached to their roots and rely more on other people's past memories about decisions and experiences, individualistic cultures tend to thrive on uncertainty and in starting afresh (Bendixon 1998; Schein 1994).

Hofstede (1991) studied cultural factors that may affect organizational infrastructures cross-nationally. When the same information is transmitted between cultures, or even within the same culture, some of the details and context of various decisions may likely be

dropped or changed to suit the telling (Walsh & Ungson 1991). The ability to provide meaningful interpretations for patterns of ambiguous information has become ever important in the complex multi-cultural organizational context. Hofstede (1980) suggests four factors, which may affect values: individuality, masculinity/femininity, uncertainty avoidance and power distance. He concluded that to understand why managers make decisions affecting the design of organization infrastructures, *uncertainty avoidance* and *power distance* were important factors (Harvey 1997; Png et al 2001).

Uncertainty avoidance is referred to the extent to which people feel threatened by ambiguous situations and have created infrastructures to avoid these situations. These people are said to have high needs for security and a strong believe in experts. Hofstede (1980) found that this behavior is also prevalent in Germany. *Power distance* refers to the extent to which less powerful members accept the power distributed unequally. High power distance cultures, such as France, South Korea and India, organizations tend to have more pyramidal structures with focus on task specialization and technical expertise. These are further characterized as high level authority centralization and minimal us of IT for information sharing. Conversely, cultures with low level of power distance prefer decentralization of authority, heavier use of IT for information access, and flatter structures.

Nevertheless, a major challenge lies in creating a knowledge platform and the environment in which managers are capable and willing to openly share. Besides different managerial mindsets and cultural values, a major challenge in IS lies in reconciling different IS strategies, i.e. exploitation and exploration, through knowledge integration. Part of this challenge concerns the transferability of knowledge, not only information (Grant 2002). This is significant in designing an IS and enabling information infrastructures (IIs). Most literature and practice, however, have focused largely on managing explicit knowledge (Grover & Davenport 2001). One way is to create collaborative information and knowledge infrastructures (Davenport & Prusak 1998, Alavi & Leidner 1999, Mentzas & Apostolou 1998). The remaining of the chapter addresses how a context of collaboration may emerge with appropriate mechanisms.

3.2 ENABLING CONTEXT

The IS literature talks about 'hard' or 'soft' approaches to managing information and knowledge context (e.g. Hlupic et al. 2002). The former assumes that knowledge can be captured and stored in the organization's structure and technological systems. The softer approaches view organizations as social systems, and claim that knowledge is embedded within human minds, with growing attention to social networks and organizational culture, i.e. 'knowledge worker' (Drucker 1995), 'social capital' (Davenport & Prusak 1998), and so forth. This section will reflect on both approaches as to how to create the organizational environment conducive of knowledge sharing and transfer.

The literature discusses different levels of knowledge transfer: between individuals, from individuals to explicit sources, from individuals to groups, between groups and from the group to the organization (Alavi & Leidner 2001). There are also various communication channels: formal, informal, and personal (context-specific transfer) and impersonal (transfer through knowledge repositories) (Baladi 1999). The transfer, sharing and use of knowledge takes another dimension of complexity in a global context where cultures and attitudes to information and knowing are different (Walsham 2001).

Galliers and Newell (2003) argue that creating conditions for emergence and ongoing learning appear to hold considerable promise for successful knowledge sharing. Knowledge sharing (Hansen 2002; Hansen et al 1999; Nonaka & Takeuchi 1995) is the exchange of tacit and explicit knowledge between individuals, groups, departments, and organizations. The premise reflects Polanyi's (1973) argument that there are many things we do not know that we 'know'. Considering that managers know more than they can say (Polanyi 1966), organizations seek to create the contextual requirements that lets them say most of what they know. Berger and Luckmann (1967) acknowledge that the climate (i.e. historical context) and social context play a major role in influencing people's judgments, behavior, and attitudes from which they construct social knowledge as a reality (Nonaka & Takeuchi 1995). Similarly, the concept of bricolage (Ciborra 1992) and improvisation (Orlikowski 1996) imply the same message and that participation and inclusiveness are key to information and knowledge sharing processes.

The process of integrating and sharing knowledge requires an infrastructure of organizational formal and informal processes. Infrastructures are often experienced as big, heavy, invisible and stable (Hanseth 2004). Ciborra (2000) defines IIs as 'integrated sets of equipments, systems, applications, processes, and people dedicated to the processing and communication of information' (Ciborra 2000, p.1). Ciborra and Hanseth (2000) describe II as puzzles of interdependence and interweaving of people, systems and processes that set the culture bed of infrastructure. Furthermore, Hanseth (2004) argues that infrastructures are networks of knowledge, where knowledge is complex, entangled and intertwined with many other entities within a large and heterogeneous network. He uses the Internet as a paradigm example to illustrate knowledge as a network. The Internet is seen as a huge number of computers linked together. As the technology is used more in a variety of ways, it matures and grows and becomes more attractive to more users. With more users, new ways of employing the technology are discovered, even more users are attracted. Over time, users' requirements and needs change and new features are added to the technology (i.e. the Internet). Due to the large scale, the link between them and the richness of data, standards are seen as crucial (ibid).

Hanseth (2004) describes all networks (knowledge, technology, organizational structure, work processes and activities) as interdependent and linked together into 'an interdependent and interconnected network having an enormous inertia' (ibid: 111). Gradually, network transforms into an infrastructure that supports large numbers of activities for ever growing users across the world (ibid). Hence, overt time, changing paradigms lead to new infrastructures and new standards. He views an infrastructure as a standardized network that plays the role of shared resources for supporting a wide range of activities for a community (ibid).

In order to facilitate a supportive infrastructure for organizing and sharing knowledge, many companies integrate their knowledge and embrace building social networks, knowledge management, and OM systems (Alavi & Leidner 1999; Walsh & Ungson 1991; Jennex & Olfman 2002). Early adopters followed approaches with varying emphasis on technology, cultural, organizational and managerial issues (Mentzas et al 2001). Gupta and Govindarajan (2000) argue that the key building blocks of a socio-technical infrastructure that enables a knowledge sharing environment are structure, IT and cultural issues with emphasis on processes, people and leadership. Additionally, Hiebeler (1996) highlights the

role of leadership and measurements. Leadership from senior managers is seen as the engine for providing leadership, structural arrangements, and encouragement in bringing people together, reward them for sharing knowledge, and provide metrics to demonstrate the value added.

The discussion around knowledge as infrastructure regards it as highly systemic, where individual pieces are linked together into complex structures in various ways. The systemic aspect, or the structural characteristic of knowledge, plays an important role in knowledge processes (ibid). Advocates to the structure-based perspective argue that successful management of organizational knowledge is subject to organizational design and supportive structures. Organizational structure refers to the grouping of accountabilities that define the position and relationship between members of the organization (Saint-Onge 1996). Organizational forms range from hierarchical bureaucracy, meritocracies, to matrix, flat, networked, or virtual, each with either centralized or decentralized governance approaches. Consequently, organizations whose strategy, processes, and culture are based around their structure take different approaches to managing their information and knowledge flow. Most of the existing literature agrees that the traditional bureaucratic, hierarchical model of organizations is ill-suited to harnessing tacit knowledge, learning, and innovation (Quinn 1992; Grant 1996). Instead, an organic model based on decentralized problem solving, horizontal coordination and cross-functional team working is advocated as the most appropriate organizational form for the creation of tacit knowledge and learning (Lam 1998).

The next two sections refer to ITs and social systems for creating an enabling context.

3.2.1 The Role of Technology

Most information and knowledge infrastructures have been based on IT tools to take care of knowledge processes, with Online Technologies (OT) being the most widely used technologies, i.e. the Internet and Intranets (Haldin-Herrgard 2000; Walsham 2001). Some other tools include Management Information Systems (MIS), Decision Support Systems (DDS) and Executive Information Systems (EIS). In response to the demands of the knowledge economy, however, the IT-market developed new technologies such as Knowledge Management Systems (KMS), Organizational Memory Information Systems

(OMIS), and Enterprise Resource Planning (ERP) systems to creating, integrating, organizing and sharing organizational 'knowledge', besides 'information' or 'data' (Alavi & Leidner 1999). Such systems may prove more fruitful for information that is more technical and objective in nature (i.e. engineering drawings, financial information), rather than tacit and experience-based knowledge.

At the same time, digital systems have gained considerable criticism. There are at least two main challenges concerning IT-based infrastructures. First, IT strategies can be imitated by competitors, which pose additional IT risks, insecurity, and dependence on the IT industry. Also, there are limits of codification strategies (Walsham 2001). Codified information has less competitive value than the tacit knowledge of social actors as a source of innovation and knowledge creation. Another criticism revolves around the intangible nature of tacit knowledge and the attempt to objectify and codify it into IS. Critics argue that tacit knowledge is embedded in contexts of social action and objectifying and storing it in repositories takes away its inherent value (Marshall & Brady 2001). How useful will that knowledge be once it has been converted? Are ICT systems capable of capturing and diffusing the tacit value of knowledge and provide them to decision makers? According to Galliers and Newell (2003: 165):

> Current emphasis on the strategic importance of knowledge is not necessarily best met through the development of ever-more sophisticated IT solutions that can encourage the sharing, creation and storage of knowledge.

This research advocates that the knowledge that differentiates companies from one another is mostly tacit in nature and embedded within human minds, processes, relationships, services and products. Ciborra and Hanseth (2000) acknowledge that the obsession with top-down control of IIs leads businesses to the actual drifting of the infrastructure itself. This has to do with the complexity of the internal context, business processes and practices, as well as the changing external environment. Assuming that IS were that advanced, the reliance on ICTs may lead to an 'easy way out' attitude and prevent top managers to remain innovative, open minded, or reflective. Once managers have acquainted themselves with those tools, they may not question the underlying assumptions of that knowledge output because of time pressure and forgotten personal memory about the purpose of that knowledge. Such criticism focuses on a lack of interpretative conceptualization of inter-subjective understanding of tacit knowledge and its embedded-ness in contexts of social action (Marshall & Brady 2001).

Communication is a complex and multi-dimensional process and tacit knowledge can be shared most effectively in the real world (as opposed to virtual) to achieve an interpretation and mutual understanding (Walsham 2001). Specifically, Schramm (1955) refers to communication as the process of establishing a commonness or oneness of thought between a sender and receiver. Here, the processes entail tacit knowledge, experience and the intelligence for know-what, know-how, know-when, and know-who to exploit on certainties and at the same time maneuver around instabilities, and fast changing internal and external environments.

Moreover, communication involves the sharing and transfer of knowledge among cultures (Soley & Pandya 2003). Critics argue that they offer limited capabilities when it comes to communication of knowledge between different locations that involve some level of tacitness. Cross-cultural involves the interaction of people, who have different approaches to sense-making and sense-giving (Walsham 2001), and whose tacit knowledge has been developed differently (Hustad 2004). Hence, cultural differences should be taken seriously in matters of information and knowledge use; specifically, in decision-making processes, where sense-making and frames of references are mirrored in people's interpretation and communication. On this cross-cultural level, Soley and Pandya (2003) state that computer mediated communication (CMC) technology may in fact increase cultural differences and set greater communication barriers, as people from different nations have different ways of interpreting messages. ICTs do not fill the gap of knowledge communication in organizations, especially not multi-nationally. Hiebeler (1996) points out that approximately 80 percent of the largest spenders on IT are not politically ready for knowledge sharing technologies.

To ensure long-term success and consistency, it is argued that organizations need to use IS where technology is more 'human-centered' (Hiebeler 1996). The effectiveness of IT tools not only depends on additional skills and literacy, but also on a suitable social structure and fit with the business strategy (among others). Hence, a primary goal of an information and knowledge infrastructure strategy should be to create a social structure which enables the process of learning for continuous improvement (Morosini 2000). The next section considers some relevant aspects of social networks.

3.2.2 Social Networks

Advocates to the social dimension (e.g, Mitchell 1983) have argued that networks are a form of organizational structure because they are socially constructed and have boundaries. They are viewed as a specific set of linkages among a defined set of actors to interpret their social behavior. In this context, the term 'network' refers to human interaction in social settings (cf. also Hanseth).

Boisot (1998) illustrates the concept of the social embeddedness of knowledge, where behavior and institutions are affected by networks of social relations (Granovetter 1985). At the epistemological level, the notion underlines the tacit nature of human knowledge and the dynamic relationship between individual and collective learning. At the organizational level, it focuses on how the firm's context and organizing principles shape the social structure of coordination, the behavioral routines and work roles of organizational members. According to Lam (1998), the structure of coordination determines the capacity of the organization in integrating different types of knowledge and shapes the nature of the social relationships. Gupta and Govindarajan (2000) phrase this idea in building an effective 'social ecology'. They refer to organizations as social systems, a comprehensive whole in which various interdependent elements interact with one another, rather than a random collection of isolated elements.

The discussion around creating a network of communities has led to several ideas and concepts, such as communities of knowing (Boland & Tenkasi 1995), communities of practice (Wenger 1998), communities of practitioners (Blackler 1995), and micro-communities of knowledge (Von Krogh et al 2000). The commonality of these concepts is that all consist of members who want to share information, insight and experience about the area of their expertise and of common interest. For example, creating communities of special expertise (Wenger & Snyder 2000) may bring the knowledge bearers and seekers closer so that they can exchange knowledge and use the right expertise in their decision making.

Hustad (2004) refers to creating 'communities of knowing' to help global firms reproduce their core competencies and corporate identity regardless of geographical distance and cultural differences (Boland & Tenkasi 1995: 55). This is not an easy task, however; 'global

contexts increase the complexity and difficulties to apply appropriate corporate and local management policies suitable to a global workforce'. The organization's governance structure, its social structure, as well as IT infrastructures have considerable influence on building networks for effective knowledge strategies.

The following section will reflect on an integrated framework developed by the University of St. Gallen's research competency center (Back et al 2007). This framework will be illustrated (as related to this thesis) to consider some of the issues in relations to enabling socio-technical environments. The purpose of such systems is to foster knowledge sharing, efficient learning, and effective strategizing. The *Knowledge Source Competency Centre* has been pursuing extensive research with industry on developing an integrated approach to information and knowledge networks. Based on a 'Reference Model' (below), it shows a way to analyze companies' approaches to capture, accumulate and share knowledge. The figure below illustrates suggested key elements in building a knowledge network (ibid).
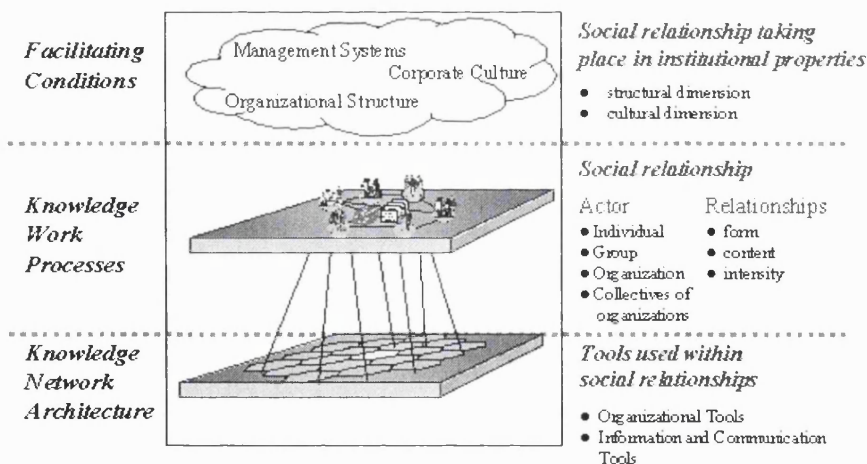
Figure 3.2: Knowledge Network Reference Model. Source: Knowledge Source St. Gallen, Competency Centre (Back et al 2007)

Knowledge Networks are conceptualized on three levels: (i) facilitating conditions for social relationships to take place, (ii) knowledge work processes in terms of actors and their relationships, and (iii) knowledge network architecture as tools for building social relationships. The Reference Model is an example of the components, and specifically their relationships, involved when organizations consider creating conditions for knowledge sharing.

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The first level, facilitating conditions, implies that knowledge work processes take place in a cross-divisional and dynamic manner. In order to develop high performing Knowledge Networks, they have to be synchronized by facilitating conditions on the structural (e.g. organizational structures) and cultural (e.g. corporate culture) dimensions. In order to facilitate that, there are enabling and inhibiting environments for crating and transferring knowledge. This leads to the second level, knowledge work processes, which refer to the capturing, transferring, sharing, using, and creating knowledge (ibid). At this point, knowledge should not be managed *per se*, but rather it needs to be connected to business drivers. Finally, the Knowledge Network architecture comprises of the tool-set within social relationships that actors use in work processes. Organizational tools consist of roles and ICTs, e.g. groupware-enabled data warehouse, to improve work processes.

The premise for these tools is to facilitate knowledge transfer, sharing and creation. Nonaka and Takeuchi (1995) argue that with socialization in small groups the quality of information sharing becomes higher and more outcome driven than in larger groups. This is due to the larger number of participants and broader areas of focus, where the accuracy of the information shared may drift and become not as useful to individual participants specific needs. In practice, the manner in which such a Knowledge Network may be constructed will depend on knowledge processes. Knowledge processes, however, are dictated by the business strategy. Hence, there is an effort (at least conceptually) to align business strategies with knowledge networks of an organization. Nevertheless, social systems are neither mechanistic nor rational. The effort for more integrated and streamlined infrastructures is a continuous challenge. According to Garvin (1997: 20), 'if people don't want to share, they are not going to do it even if you have the best technology in the world. People won't share if they don't see what's in it for them.' The highly context-specific and time-sensitive nature of knowledge makes it difficult to be objectified and converted into codifiable formats. The next sections shed light on elements of an enabling social system as a way to facilitate knowledge sharing and organizational ongoing learning.

In environments of uncertainty and discontinuous change, a climate of organization-wide participation and collaborativeness are the first steps towards creating willingness of members to share their knowledge (Gupta & Govindarajan 2000). The IS literature identifies determining factors that may enable the context for knowledge sharing and

transfer between actors in organizations. Many researchers claim that organizational culture provides the enabling context for teamwork, knowledge sharing, continuous collective learning and the cultivation of collective intellectual capital (Davenport et al 1998, Alavi & Leidner 1999). The link with culture implies that the values and beliefs that organizational members practice should create openness and trust that will strongly influence their communication (Gruber 2001). Further to this note, Hamel (2000) argues that the penetrability of the social context among strategic actors is perceived as important in determining the degree of openness and trust.

Stata (1989) defines openness as the partners' willingness to put all the cards on the table and eliminate hidden agendas. Badaracco (1991) states that openness is paramount in knowledge sharing. A lack of openness would be seen as a major constraint in hampering learning the knowledge embedded in the culture of the organization, specifically in the minds of senior/experienced managers. A perceived lack of openness would lead to deteriorating level of trust among actors (Davenport & Prusak 1998). The channels through which actors interact have large implications for the perceived openness among companies (Von Krogh et al 2000). For example, the richness of media determines the extent to which knowledge is successfully transferred (ibid). Media richness is discussed in two dimensions: the variety of cues the medium can convey and the rapidity of feedback it can provide (Daft & Huber 1987). When actors face ambiguous situations, face-to-face interaction presents the least possibility of misinterpretation of a message. According to Trevino and colleagues (1987: 557): 'Meaning must be created and negotiated as individuals look to others for cues and feedback to help interpret the message'.

Studies of organizational culture view organizations as epistemological systems (Nonaka 1994), or a shared meaning system, where the organization learns, changes, and evolves through social interactions. Because of the implicit nature of the culture element, it tends to be taken for granted in practice. According to Saint-Onge (1996), an organization's culture is a powerful determinant and shaper of the businesses strategies adopted. Literature treats culture as a set of behavior that is a visible manifestation of mental assumptions (Schein 1990). Johnson (1992) defines culture as being manifested in rituals and routines, stories, myths and symbols, power structures, organizational structure, and control systems. According to Schein (1990: 111):

> Culture can defined as a pattern of basic assumptions, invented, discovered, or developed by a given group, as it learns to cope with its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, is to be taught to new members as the correct way to perceive, think, and feel in relation to those problems.

Here, the process of knowledge sharing is determined by values embedded in the social structure of organizations. Since values are part of tacit knowledge (Nonaka & Takeuchi 1995), and tacit knowledge is unique to each and every individual, people 'see' things differently in the same context and organize their perceptions by their values (Davenport & Prusak 1998).

Knowledge sharing takes place when there is a principally similar understanding of the same concept between the exchange agents. It must be expressed in words or symbols that are common to the social domain of both employees (Zeleny 1989). What provides the means for common understanding is a common mental framework and mindset that leads to the use of a 'common language' (Nonaka 1994). This may happen consciously and purposefully, or accidentally (Davenport & Prusak 1998; Hamel & Prahalad 1989).

Skyrme and Amidon (1997) recognize that changing and managing people's behaviors by implementing a knowledge sharing culture represents a major challenge (Desouza & Evaristo 2003). It is not sufficient to simply connect people with information by means of technological or social mechanisms, but to develop a synergistic environment conducive to individual knowledge sharing. To this end, Morosini (2000) states that the main challenge of global knowledge coordination is to recognize the diverse backgrounds of organizational members and to facilitate the necessary infrastructure for effective communication between all managerial and organizational levels. Following this premise, he introduced five elements that are important in enabling the context for knowledge sharing: social players, social networks, open business values, Gnostic rituals, guiding myths. These are briefly mentioned below as a general reference.

Social players are referred to as a company's employees, customers, suppliers, allies, as well as competitors and other key stakeholders. Morosini (2000) argues that companies should identify key social players and build a team of leaders who proactively reinforce learning throughout the organization. There is agreement in the management literature that knowledge sharing and organizational learning requires continuous attention

from senior management. Gilbert (2000: 112) argues that the design, creation and maintenance of a 'learning architecture' are the job of the CEO. All together, this may be easier said than done. Organizations are complex systems, where the intentions and actions of players are not always predictable or visible, making the job of the CEO that much harder.

Social networks are primarily human-driven and IT-enabled. Examples range from informal networks to pass on information to project teams, to occasional formal work group meetings, and communities of practice (e.g. Wegner & Snydner 2000), where the goal is to build and exchange knowledge interactively. Networks are important mechanisms to create and maintain relationships between members for knowledge transfer and learning processes. Even if social players possessed high personal market value in terms of skills and experience, they would not contribute to organizational learning if they do not share their expertise.

Although networks facilitated through IT can be valuable to some degree, tacit knowledge and experience is best shared in regular social settings. Nevertheless, companies should strike a balance between IT-enabled and human-enabled networking according to needs and relevance. The effective use of social networks requires a certain supportive attitude to share their knowledge openly instead of having competitive behavior and retaining their information for their own good.

Open business values (OBVs) implies that social players 'share, enact and communicate to others basic principles of behavior which encourage learning, sharing of information and transparent communication' (2000: 250). Interestingly, most successful companies are very explicit about communicating the desired company values throughout the firm. OBVs can be reinforced by creating the suitable mentality and action-oriented communication through company-wide practices and personal development as part of internal knowledge management strategy.

Gnostic rituals refer to specific formalized actions that continuously reinforce organizational values. Morosini (2000) argues that these should be unique to organizations and difficult to replicate or transfer. Some examples are personnel development programs, rotations, performance evaluation practices and international assignments, regular meetings, and other communication mechanisms. It is believed that systematic routines for

measuring the performance of groups are fundamental to uncover opportunities to share knowledge and best practice (Gupta et al. 2000). Many companies rely on group-based incentives to encourage eagerness for proactive sharing. These formalized measurement routines are in line with the organization's culture and the underlying values.

Guiding myths are related to the drivers of organizational culture and the elements that give organizations a collective identity and sense for self-perception. Guiding myths are defined as (Morosini 2000: 256):

> ... the origin of every Gnostic ritual... a collection of heroes, metaphors, events and expressions that express uniquely a company's historic raison d'être, the essential elements of its founding leaders' visions of the future, and its particular legacy of values and lasting contributions.

Morosini (2000) claims that these principles have proven to be main ingredients for success over time, which tend to become symbols of success and become engraved in the organization's memory that affect its vision for the future. For example, they are used to continuously fill the employees' minds with success stories and legacies to create guiding myths (ibid).

The next section synthesis our discussion so far by shedding light on some of the strategies to IS and knowledge in the literature.

3.2.3 Information Systems and Knowledge Strategies

This section provides examples of two approaches towards managing and organizing information and knowledge, keeping in mind the exploration and exploitation strategies. They are discussed in relation to process- and product-based approaches (Mentaz 2001), and personalization and codification (Hansen et al 1999).

The process-centred approach is characterized as being people-driven and treats knowledge as a social communication process. Knowledge is closely tied to the person who developed it and is shared mainly through person-to-person contacts. IT tools are viewed as interactive and used in the communication process. This is also referred to as the 'personalization' approach (Hansen et al. 1999). On the other hand, the product-centred approach is described as document-driven and focuses on knowledge artefacts, their

creation, storage and reuse in computer-based corporate memories. This is also referred to as the 'codification' approach by Hansen et al (1999), as illustrated below:

Codification		Personalization
Provide high quality, reliable and fast IS implementation by reusing codified knowledge	**Competitive strategy**	Analytically rigorous high level problems solving by channeling individual expertise
Reuse Economics: large teams; one-time investment in knowledge asset for future reuse	**Economic / Business Model**	Expert economics: small teams work towards creating unique and customized solutions
People-to-Documents: e-document systems codify, store and disseminate knowledge	**KM strategy**	Person-to-Person: develop networks for linking people so that tacit knowledge can be shared
Invest heavily in IT, the goal is to connect people with reusable codified knowledge	**IT**	Invest moderately in It, the goal is to facilitate conversations and the exchange of tacit knowledge
Train people in groups and though computer-based distance learning. Reward people for using and contributing to document databases	**Human Resources**	Unique recruiting and training through one-on-one mentoring. Reward people for directly sharing knowledge with others

Figure 3.3: Two approaches to Knowledge Management Strategy (Hansen et al 1999)

While Hansen et al (1999) refer to this conceptualization as 'knowledge management strategies', this research finds the classification of the two approaches useful in relating them to the theoretical framework (see chapter 4). Hence, the table will be revisited in later chapters. Further to Hansen et al (1999) argument, due to the different nature of problems and cases in different sectors, i.e. each offering different solutions, the process of managing and (re)using information and knowledge becomes different. For example, companies that sell standard solutions which require tapping into their existing codified knowledge stored in knowledge networks and repositories to retrieve solution based information. Other companies, which sell tailored solutions, require networks that are person-to-person to create a solution for highly specific client problems. For example, the codification strategy is more relevant to the software industry, where practices are on the operational rather than the strategic level. Due to the relatively low context dependence, their experiences are easier to categorize and formalized into explicit formats. Although they also stress social networks, the use of advanced IT-based systems is seen as more appropriate to capture and disseminate knowledge. Management tends to be centralized and connections are primarily established through large central organizations (i.e. knowledge centers) that synthesize and distribute the firm's knowledge. These examples become relevant later on in this research.

Similarly, Sarvary (1999) talks about the bottom-up, decentralized, and the top-down, centralized approach. The former approach is typical in firms that have loose coordination of processes and operate in self-organized teams to tackle problems. Again, this is because of the context-dependent nature and strategic orientation of their work that surrounds a lot of the tacit knowledge and experience, which cannot be codified. Hence, due to the complexity of high-level management decisions, solutions and problems are best approached by focusing on connecting people more efficiently, rather than focusing on synthesizing knowledge. An advantage of centralized systems is the visibility of knowledge inflow and the opportunity for visionary breakthroughs. Disadvantages include the high expenses associated with ICT tools, the problem of measuring the real benefits, high monitoring costs, and lack of tight control over processes. These investments in large are based on 'faith' and are therefore risky (Sarvary 1999). Another challenge is building an explicit culture that fits the organizational knowledge network structure. Decentralized systems, however, tend to be self-regulatory because the culture necessary to support these networks tends to evolve from the very philosophy of the system (ibid).

The premise of creating an information and knowledge infrastructure is that the ways in which knowledge is used and shared shape organizational memory (OM), and therefore may influence future decisions. A critical concern for practitioners remains how to institutionalize individual tacit knowledge to secure the intangible assets that otherwise would remain hidden (Zack 1999). In relation to this concern, the next section discusses organizational learning and memory.

3.3 ONGOING LEARNING & ORGANIZATIONAL MEMORY

The concept of organizational learning (OL) is based on the work of Argyris and Schon (1978) and Senge (1990). The literature on OL (Levitt & March 1988) specifically emphasizes the importance of tacit knowledge in collective learning (Nonaka & Takeuchi 1995; Spender & Grant 1996), which seeks to understand the nature of knowledge and organizational learning from a pluralistic epistemological perspective. According to Choo (1998), organizations create, organize, and process information to generate new knowledge through learning. These activities should enable organizations to develop new capabilities,

products and services and improve organizational processes. Continuous learning plays an important role in the process of creating organizational knowledge (Hiebeler 1996).

Ongoing learning depends much on the flow of knowledge between individuals, teams and subsidiaries. The cognitive view on OL emphasizes 'mental models' (Johnson-Laird 1983), where individuals create and manipulate analogies in their minds. What seems to matter is not 'reality' but perceptions of reality (Baets 1998). According to Senge (1990), mental models are deeply held internal images and represent a person's view of the world (see also chapter 2). Senge relates the process of individual knowledge creation, mental models and learning to organizational knowledge creation (also Nonaka et al 1994), corporate mental models, and organizational learning.

In order for knowledge flows to be effective, the 'absorptive capacity' of the subsidiary becomes crucial (Mudambi & Navarra 2004). Cohen and Levinthal (1990) refer to this as the ability of a firm to recognize the value of new, external information, and to use it for commercial value. Advocates of more holistic approaches (e.g. Levitt & March 1988; Senge 1990; Popper & Lipshitz 2000) argue that given the appropriate culture and reward system, combined with suitable infrastructures, innovation by tinkering is created which leads to improved experimentation, knowledge sharing, and OL may flourish. Tinkering, or the bottom-up approach to knowledge transfer may be effective, however, it has been a great challenge in practice. Galliers (1993) points out the difficulties and consequences of tinkering for strategic gains and argues for appropriate mechanisms to permit the ideas initiated at the base to reach the top of the hierarchical structure.

3.3.1 Organizational Memory

Competitiveness and learning require communication among members of the organization, improved dissemination of knowledge among its members (Kogut & Zander 1992), and knowledge integration (Grant 1996) across departments, business units and internal boundaries. Retaining organizational knowledge becomes especially important to decision-makers when industry turn-over is high and individuals leave the company, along with all the information, skills, contacts, and tacit knowledge that they possess (Weick 1995). OM concerns how to collect, store, and provide access to experience, skills and know-how. It

implies that stored information from an organization's history can be brought to bear on present decisions (Walsh & Ungson 1991). OM is not studied in isolation or within a single division, but part of the whole organizations with all the dynamics and uncertainties of social reality.

Notably, Walsh and Ungson (1991) distinguish between decision information and memory and note that both can be mistakenly interchanged in the context of acquisition and retrieval. Decision information refers to 'cues perceived by individuals as reducing equivocality' (Shannon & Weaver 1949), where as memory refers to stored information about a decision stimulus and response that comes to bear on present decisions (ibid). They state that the difference between information and memory lies in their temporal qualities, as well as their uses in organizations (ibid). Advocates of OM emphasize the benefits of using already established resources in making more effective decisions. It has been argued that the 'past events, promises, goals, assumptions, and behaviors' that are stored in the organization's memory (March & Olsen 1976: 62-3) may shape future decisions. Walsh and Ungson (1991) argue that OM is most beneficial when it is integrated in decision-making processes in a balanced, purposeful, controlled and conscious manner. Neustadt and May (1986) suggest that OM can be most helpful in early stages of decision-making, however, when the similarities and differences of past and the present are being assessed.

At the same time, there are sufficient opposing arguments that view memory as a 'pest' (Weick 1979a: 221) and discourage its use in present decisions to avoid re-occurrence of past errors. Opponents emphasize the potential constraining role of OM, especially in the early stages of decision-making processes, where it may create biases around idea generation, situation evaluation and making strategic choices (March 1978; Nystrom & Starbuck 1984; Weick 1979). More specifically, OM has been criticized for inhibiting OL by promoting a habit or culture of single looped learning, by which the status quo is maintained (March 1978; Argyris & Schon 1978). On the individual level, Argyris and Schon (1978) among others, argue that individuals in an organization retain information based on their own direct experiences and observations and interpret it according to their own assumptions (Brief & Downey 1983), values (Beyer 1981), and articulated beliefs (Sproull 1981). Walsh (1988) notes that individuals create belief structures in an information environment, where these often blind them from making decisions that lead to

organizational effectiveness. Similarly, Nystrom and Starbuck (1984: 53) warn that potential 'encased learning' produces 'blindness and rigidity that may breed full-blown crises'. Kantrow (1987) argues that that the biases and blindness created by seeing the present and future through the understanding of past may create a corporate tradition, constraining new problem definition, alternative generation, evaluation and decision choices.

On the other hand, while reliance on the past may produce blinding encased learning, a cautious appreciation for the past can enhance the vision of a current decision situation. When new decisions can be imbued with the tradition and legitimacy of the past, they are less likely to be rejected (Kantrow 1987). Recognizing this, Wilkins and Bristow (1987: 227) imply to 'learn to change by honoring the past'. Hence, re-using information from OM has a significant bearing on future decisions – for the better or worst.

CHAPTER SUMMARY

The aim of this chapter has been to introduce key concepts in the IS literature with regards to creating an enabling context for knowledge sharing and transfer. It was pointed out that what leads to exploit an IT opportunity is not only technological feasibility, but moreover, the prevailing internal competences, management culture and experience through non-technological means (Hackney et al. 2000; Galliers 2007).

Organizations were described as dynamic human activity systems, which encompass data, information, knowledge, IT and social systems. These activity systems become complicated when it is experience-based personal knowledge that is being used, organized and shared. The nature of IIs was discussed from a socio-technical perspective with an emphasis on social systems as a key enabling element to facilitate effective knowledge sharing. It was argued that a critical enabling factor is to create a knowledge sharing context through appropriate infrastructures supported by knowledge networks, technologies, culture and leadership (e.g. Walsham 2001; Hanseth 2004; Galliers 2004; Boland 1995). Moreover, it was argued that the exploitation and exploration of organizational knowledge for effective decision-making requires an integrated and interactive approach, whereby ICTs may act as powerful, however not sole, facilitators.

The final section reflected on organizational learning and memory in how they may influence decision-making process. OM was discussed as useful depending on the type of knowledge, the organizational context and purpose. It was argued that architectural requirements for building a knowledge infrastructure should only be regarded as enabler of a greater context of a knowledge sharing culture. This chapter also pointed out that organizational challenges with regards to using information and knowledge have not disappeared with advanced ICTs, but rather evolved to different kinds of challenges that need to be coped with. Recognizing this has larger implications on IS in the manner in which they are perceived, used, and managed.

The next chapter introduces the conceptual framework in this research and outlines the methodology.

CHAPTER 4 THEORETICAL FRAMEWORK & METHODOLOGY

This chapter introduces the theoretical framework and outlines the
methodology. Interpretivism and the hermeneutic circle are used
as away to reach explanation. Qualitative methods of data collection
are interviews and on-site observation at two case companies.

4 INTRODUCTION

The first section of this chapter introduces the theoretical framework. The methodology section follows, which outlines the philosophical underpinnings of this research. The final section describes the data collection methods and addresses some of the associated challenges.

4.1 THEORETICAL FRAMEWORK & RESEARCH OBJECTIVE

The objective of this research is to explore the ways in which managers leverage management information (MI) and knowledge through various forms of IS in everyday strategizing processes. The IS strategizing framework (Galliers & Newell 2003) is chosen as a suitable conceptual framework to guide the research process. The theoretical framework (see figure 4.2) captures recent developments in strategic management and strategic IS (SIS) thinking. This will be applied in the context of competitive strategizing at two global

companies. The main components of the framework that are considered in this research have been discussed in chapters 2 and 3. These are the (i) approaches towards IS, in terms of exploitation and exploration strategies, and the (ii) socio-technical elements of Information Infrastructures (II) of organizations. While the human agent is not an explicit part of the framework, it will become an important part of the research as we shall see. Notably, the research refers to the human agent also as 'strategic actors', 'strategizer', or managers/advisors (in reference to the case studies). Below is an illustration of how chapters 2 and 3 set the background to the theoretical framework:
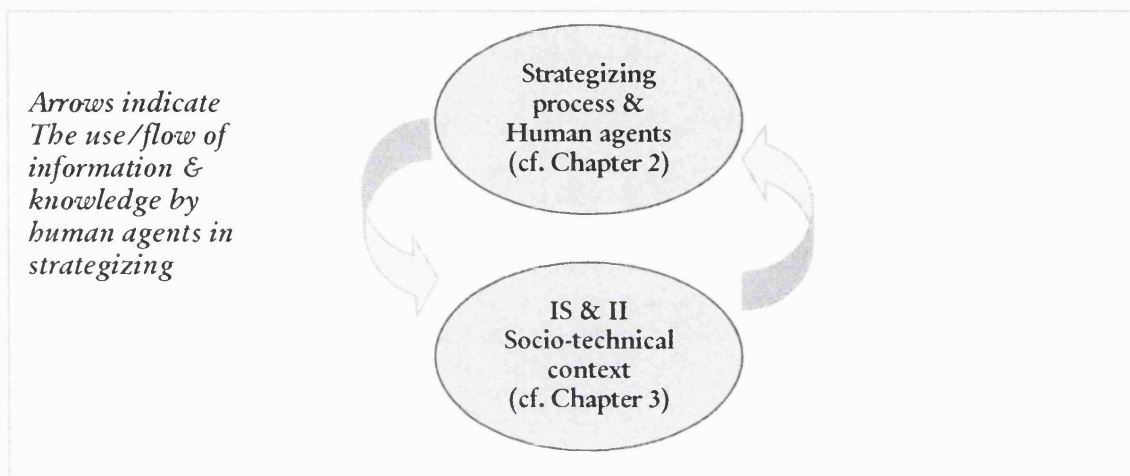
Figure 4.1: Illustrating the research context - Information and knowledge flow between strategic actors and various forms of organizational information systems

Chapter 3 positioned the human agent in the socio-technical organizational system, an environment in which social networks, information, knowledge and technological platforms, and political inertia interact and shape one another (Ciborra 1994; Star & Ruhleder 1996). The chapter made special reference to the role of ICTs and social networks and how these may influence the ongoing learning and memory of organizations. Organizational culture was discussed as an important element of the shaping of OM. The purpose of an enabling II was to create greater efficiency and effectiveness (Newell et al 2003; Adler et al 1999; Daft 1998) in decision-making processes. To this end, exploitation and exploration IS and knowledge strategies (Zack 1999) were mentioned as ways to organize, share and transfer MI and knowledge.
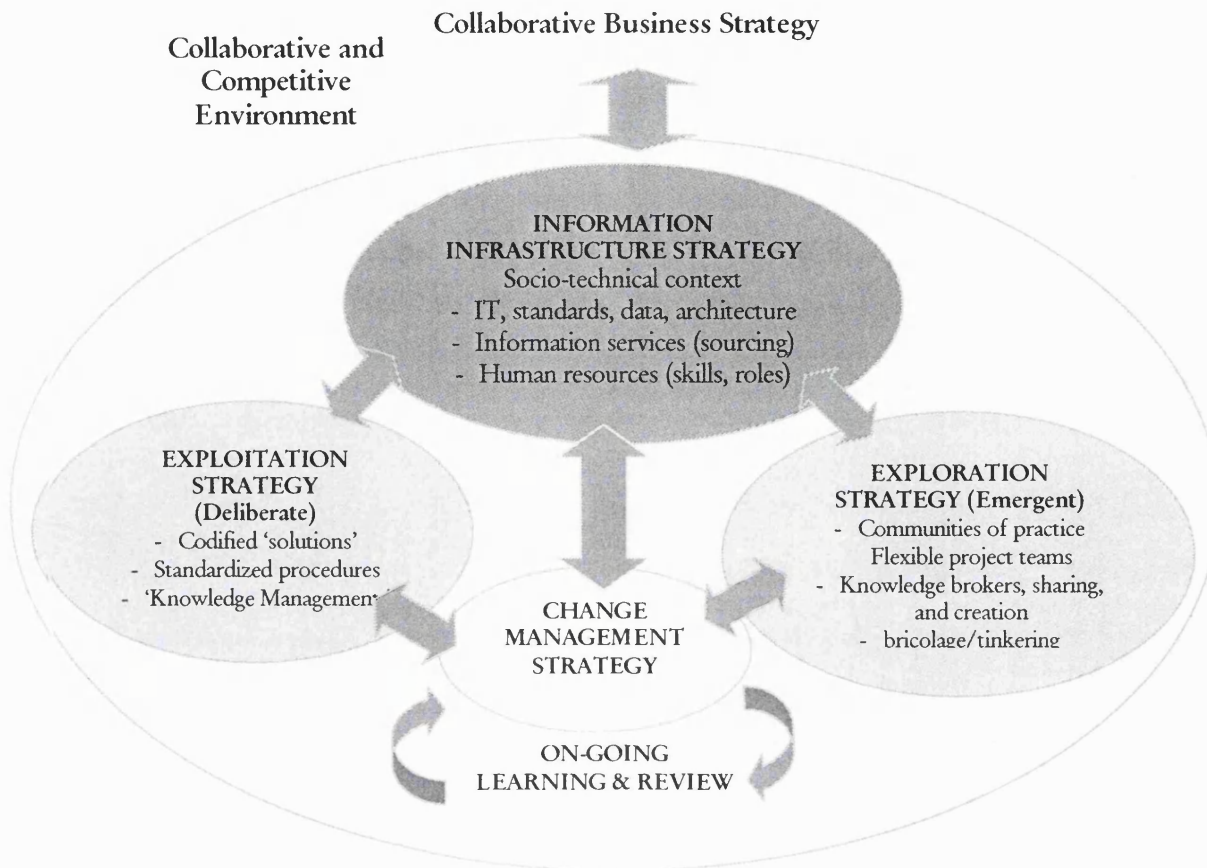
Figure 4.2: Theoretical framework - IS Strategizing Framework (Galliers & Newell 2003)

The research conceives organizations as holistic, dynamic, and interactive. In this context, the framework argues for building a collaborative environment with the support of internal and external arrangements. Collaborative arrangements are seen to have socio-technical characteristics. These are suggested to provide an enabling environment in which information and knowledge may be leveraged to help create competitive advantage (Galliers & Newell 2003). The collaborative nature of strategies implies that, overtime, the boundary of the organization becomes increasingly porous due to continuous interactions between internal and external collaborations, e.g. business alliances and virtual partnerships. The framework addresses fast changing internal and external environments with the 'change management strategy' component. This particular component will be considered as an implicit and inevitable part of IS and strategizing processes, rather than a direct study thereof. Furthermore, while the framework has originated from the SIS literature, this thesis is not about SIS. It is about exploring how various forms of IS (which may or many not include strategic IS) are used in strategizing. Nevertheless, it will be seen in the case studies.

The table below outlines the key components used to reach explanation:

Key components	Meanings in the context of this research
IS strategizing in the context of business strategizing - Exploitation/Deliberate view - Exploration/Emergent view	Use of different forms of IS in the process of decision making and business strategizing
Organisational Information Infrastructures	Collaborative communication arrangements in the socio-technical environment of a global organization, i.e. presence of ICTs and social systems in which data, information and knowledge are embedded.
Strategizers / Strategic Actors Not explicitly illustrated by the framework	Consideration of human agency, i.e. senior managers engaging in the strategizing aspects of business development with possible cross-functional and cross-cultural interactions

Figure 4.3: Key components of analysis

The framework views IIs as platforms with socio-technical properties that help to provide an enabling environment. The concept of II was discussed in chapter 3 with emphasis on the need for efficiency *as well as* flexibility to cope with conflicting demands, unpredictable business environments and fast changing information and knowledge requirements (Galliers 2004). Furthermore, the framework accounts for the dichotomy exploration/exploitation strategies. The exploitation strategy addresses deliberate approaches to IS as an attempt by managers to impose rules and 'best practice' on the organization to revolutionize work processes. Examples are based on the Porterian school of thought and similar top-down perspectives, where firms embrace technological systems based on Web technologies to integrate information across platforms. In deliberate terms, functions are organized around ICT 'solutions' to include a large variety of systems, such as Internet, corporate intranets, extranets, and browsers to data warehouses, software filters and agents. The assumption is that making knowledge widely accessible allows managers to cope with rapid change, turnover, customer integration, and other business purposes (Alavi & Leidner 1999). The notion of knowledge is regarded as a competitive intangible resource that, if used judiciously, could lead to competitive advantage (Zack 1999). A widely discussed example are Enterprise Resource Planning (ERP) systems, which have been argued and marketed as assisting in integrating knowledge about business processes across functions, units and locations for greater efficiency. Zack (1999) notes that, in practice, most such initiatives are viewed primarily as IS projects. Thus, the literature treats IS, knowledge management systems (KMS), and organizational memory (OM) systems as separate, this research may use them interchangeably.

Conversely, the exploration strategy emphasises human-driven processes and takes a bottom-up perspective on strategy and IS. For instance, it looks at organizational learning (OL) as insights, ideas and learnings emerging from ongoing re-evaluation and review of the external environments and internal capabilities. The purpose of process outcomes is to achieve efficiency by reducing problem-solving time and faster delivery (Alavi & Leidner 1999). The focus is how to combine and use resources and the learnings already embedded in the routines. According to Andreu and Ciborra (1996), the interplay between resources, routines and capabilities is very rich and complex, which makes the process of strategy one which cannot be necessarily planned deliberately. Thus, the framework assumes strategy to have the following characteristics (Galliers & Newell 2003):

- Ongoing and processual
- Dependent on learning from 'below' as well as from outside or above
- Dependent on tinkering and improvisation
- Ready to learn from or respond to the emergent and unintended consequences of strategic decisions.

The theoretical framework will be used to identify:

- Distinctive approaches to using IS, i.e. with regards to exportation and exploration
- Elements of socio-technical IIs in the case companies
- The inter-relationships of IS, elements of the II, and the context of business strategizing.

Moreover, this research is interested in the dynamic interaction between human agents in the strategizing process and the role of IS. A further aim is to try to identify potential strengths and shortcomings of the framework within the scope of this research, and so suggest contributions towards richer conceptualization. As mentioned before, the framework is not seen as a theoretical 'model' to be tested in practice with dependent and independent variables. Rather, it will be used as a conceptual guide, which the researcher uses to explore established theories, as well as emerging phenomena from the case studies.

In summary, The IS strategizing framework was chosen because it illustrates an appropriate balance of theoretical richness as well as flexibility to consider emerging phenomena. The analysis of IS is based on the *interaction* between strategizing managers' knowledge work and organizational socio-technical context. This is because the thesis assumes that meanings are embedded within their own context and that the interpretation of phenomena is due to

differing world views and paradigms. Hence, systems are tackled in their broader sense, which include ICTs, people, and processes, tangible and intangible resources. Having introduced the conceptual framework and made explicit the components that we choose to focus on, the next section will justify how the use of the framework and the underlying concepts may guide the research process.

4.1.1   Understanding IS Theory in Context

Theory is both a way of seeing and a way of not seeing'
- Walsham (1993)

This thesis explores relevant theories and different scenarios from two case studies to explain how and why things happen (Gregor 2006). Hence, theory is used as a way to make explicit that which exists in the real world but was not looked at from a certain mind frame. For the purposes of this research, a theory is defined as 'an artefact in that it is something that could not exist in the real world without human intervention' (ibid: 619). An appropriate understanding of the field of IS is argued by Lee (2001: iii):

> Research in the information systems field examines more than just the technological system, or just the social system, or even the two side by side; in addition, it investigates the phenomena that emerge when the two interact.

Thus, the IS discipline is at the intersection of knowledge of the properties of physical objects and knowledge of human behaviour (Gregor 2006). In order to understand IS, theory helps us to link the natural and social worlds with the artificial world of human constructions (ibid). IS are of interest because information handling activities in organizations are undertaken by and for people to support of the tasks they set out to achieve (Avgerou & Cornford 1993). An inherent problematic in the study of IS, however, has been that literature tends to understand the world of the manager and that of the systems separately, and then establish a fit between the two (see 'strategic alignment' discussion in chapters 1 and 3). A general premise of this thesis is to challenge this assumption by arguing that as long as one conceives these worlds as separate and studies them as separate entities, any attempted effort to fit these worlds through strategic IS will be problematic (Tinaikar 2006). It further argues that in the context of strategizing, synergy between IS and managerial activities may be achieved then, when IS and the strategizing processes are viewed as one integrated whole (one world), where human agents use information and knowledge interchangeably between various approaches.

There are numerous ways in which the theoretical framework may be utilized, depending on many things, such as the goal of the researcher. One familiar way is to test the extent to which IS and business strategies are aligned in practice as part of a strategic IS planning. Conceptually, once again, the question arises as to what exactly a 'strategic alignment' is. The framework invites an opportunity to explore that area further. Another approach would be to investigate the elements of an organization's II for an enabling context to support business strategies, or for an appropriate architecture to accommodate various the IS. After all, even the most suitable IS may be wasted if they are not an integral part of a socio-technical network. Nevertheless, much depends also on the functionality of IS and their specific purpose. Nevertheless, while the IS strategizing framework is used as a sense-making device to view the world in a certain way (Klein & Myers 1999), there is no conscious attempt to 'test' the framework in order to prove or disapprove any established conceptualization. The 'testing', of any framework may reveal different outcomes when applied across different contexts and with different underlying assumptions. In fact, the search for an absolute is not congruent with an interpretivist's world view. The point is not to find a solution or to generalize, instead, the framework will be used to appreciate some objectivity in the chaotic world, and to identify general domain of interest. Within this domain, assumptions are taken to question conventional notions and make new room for insights. Hence, the researcher takes a neutral stance to see things as they are, and then reflects on alternative perspectives in terms of 'what if', using supportive theoretical concepts and findings from the practice.

4.1.1.1 Explanation

This process of researching and interpreting is guided by the goal of reaching a richer explanation. Explanation could also be labelled as theory for understanding, as the emphasis is on how the world may be viewed in a certain way, and on making explicit how things are or why they are as they are (Gregor 2006). Explanation as theory corresponds well with the views of theory in the interpretivist paradigm (Klein & Myers 1999) and hermeneutic approaches (Denzin & Lincoln 1994). Explanation seeks to distinguish the what, how, why, when and where, but does not seek to predict with any precision and there are no testable propositions (Gregor 2006). Here, scenarios from interpretive case studies provide alternative explanations for research phenomena, to confirm relevant theories and to extend the framework in an attempt to spur interest in future research in this area. The

means of representation for explaining research phenomena are by words (i.e. interview quotes), diagrams and tables.

A primary construct of theory for explanation in IS research is usually technology with various conceptions and structural features of the organization, i.e. roles, rules and resources. This research tries to seek explanation not of specific objective constructs, such as a technology, but of the *dynamic interaction* between the socio-technical organization, the available IS, and the strategic actors within their human subjectivity. The relationship between these is seen as such that strategic actors (as part of the social-technical organization themselves) struggle to find, access, create and manage information and knowledge resources in ways as to, or appearing to, being competitive in their businesses. Nevertheless, the boundaries between distinct research topics become more blurry once the observation starts in practice. So this research might touch upon interrelated issues such as OM, culture and politics, as appropriate. In order to be able to seek constructive explanation from this dynamics, a multi-theoretical and multi-methodology approach is necessary. This allows the complexity of the real world dynamics to be appreciated and addressed, and recognizes that subjects cannot be held constant to be studied while the world around them changes.

The approach of a purist would be to adopt a single theory or philosophy and see the world through that lens in creating and building knowledge. An underlying belief of this research, however, is that adhering to a single paradigm may also hinder one from not seeing other phenomena that may be as important in understanding the context. Even if the literature is confident of the merits of a certain approach, there have been difficulties in translating theories into actual day-to-day working practices in organizations across the world that apply IS strategies (Avgerou & Cornford 1993). This has also raised questions in methodologies to study IS in organizations. In line with Walsham's statement (1993): 'Theory is both a way of seeing and a way of not seeing', this research argues that a multi-paradigm approach is not only interesting but necessary in order to capture the undercurrents of the socio-technical and changing socio-political world. While not everything can be captured by a single researcher, suitable research methods go a long way. The rest of this chapter elaborates on the methodology of this research and the research strategy.

4.2 PHILOSOPHICAL ASSUMPTIONS

This research takes a qualitative paradigm to inquiry. The advantage of qualitative research is multifold. Here, the researcher appreciates the opportunity to incorporate and reflect on various complexities of organizations as they emerge from social, technical, cultural and political systems for a holistic understanding. There are various philosophical perspectives which can inform qualitative research. For example, qualitative research can be positivist, interpretive or critical (Orlikowski & Baroudi 1991). The contribution to the body of knowledge depends considerably on the ontological and epistemological positions taken, as well as the respective methodology chosen to approach an enquiry. Methodology refers to the specific manner in which the empirical work is conducted. The basic philosophical principles behind the research dictate the methodology (Antill 1991). The rest of this section addresses these issues.

4.2.1 Ontology & Epistemology

There are a number of predominant frameworks used in IS research that address the researcher's philosophical foundation. Ontology comprises of the researcher's foundational beliefs about the 'real' world in which she pursues a scientific investigation. Typically, researchers accept a chosen ontology as given reality and do not question the underlying assumptions on which they base their interpretation, or rationalization, of the world. In other words, any chosen ontology determines that which comprises one's 'real' world and affects what one seeks to observe. Subsequently, the reasoning process and the conclusions drawn are affected accordingly. While ontology concerns our basic assumptions about the world, epistemology is the branch of philosophy which informs us about the knowledge and how human beings obtain and validate their knowledge in terms of 'how we come to know' (Hirschheim 1992). It is sometimes defined as the theory or science of knowledge (Lee 1991); however, the meaning of 'theory' here may be controversial as any 'theory' itself depends on other factors.

The underlying philosophical assumptions greatly affect the beliefs about the relationship between theory and practice. Frequently, conducting IS research has been framed in terms of distinctions between 'positivist' and 'interpretivist' paradigm (Orlikowski & Baroudi 1991). Other distinctions concern qualitative versus quantitative methods, objective versus

subjective (Burrell & Morgan 1979), taking an outsider (etic) or an insider (emic) perspective, nomothtic (concerned with the discovery of general laws) versus idiographic (concerned with the uniqueness of things), aimed at prediction versus explanation, as pluralism (Mingers 2001), as integrating approaches (Lee 1991), and so forth. It should be noted that there is considerable disagreement as to whether they are distinctively opposed or whether they can be used within one study. Lee (1991) addresses that while these are philosophically distinct; the distinctions are not always clear cut in the practice of social research. For example, the same ontology can lead to more than one epistemology and the same epistemology may have more than one methodology (Lee 1991). Likewise, positivist ontology may use mathematical reasoning as well as qualitative processes. This research regards the dimensions ontology, epistemology, methodology, and method as a heuristic device rather than a rigid set of definitions.

Nevertheless, this range of perspectives has not been as evident in the IS research as it is in some other disciplines. In their study, Orlikowski and Baroudi (1991) found that much IS research reflects a positivistic orientation. The positivist tradition is rooted in natural sciences and is identifiable where there is evidence of formal propositions, quantifiable measures of variables, hypothesis testing, and the drawing of inferences about phenomena from a selected sample (ibid). This dominance of positivism has substantially limited what aspects of IS phenomena have been studied, and most of all, how they have been studied. This exclusive perspective on the world has implications not only on theory and the understanding of IS, but also on the practice of IS work. According to the authors (ibid: 7):

> The findings of information systems research filter into the practitioner community and are used as prescriptions for action. Restricted research, thus, has far-reaching consequences.

Positivism has shown its shortcomings in the multi-disciplinary field of IS. A number of researchers have indicated the application of positivism to research on social phenomena is problematic (Galliers & Land 1987; Lincoln & Guba 1985; Weick 1984). When textual data are quantified, the understanding of a phenomenon from the point of view of the participants and its particular social and institutional context is largely lost (Kaplan & Maxwell 1994). More specifically, Angell and Smithson (1991: 35) argue that 'the dynamic and ambiguous complexity of an organization cannot be just reduced to simplistic data structures which imply a tidy and convenient homogeneity in organizations that is just not

there'. Along these lines, Walsham (1993) highlights the limits in the understanding of IS in organizational contexts (ibid: 4-5):

> Much of this (the existing) literature reflects a rational-economic interpretation of organisational processes, and a positivist methodology which is based on the view that the world exhibits objective cause-effect relationships which can be discovered, at least partially, by structured observation. Many researchers have noted the limitations of such approaches ... (the) style of research being proposed ... (involves) broadly interpretive methods of research, aimed at producing an understanding of the context of the information systems, and the process whereby the information system influences and is influenced by its context.

Positivist researchers believe that scientific inquiry is 'value-free' (McCarthy 1978: 139) and do not get involved in the moral judgement or subjective opinions. It is this philosophical debate about the value-ladenness of assumptions, approaches, data, theories and explanations that positivists do not engage in (Orlikowski & Baroudi 1991). On the other hand, interpretivists argue that the very distinction between fact and value in itself is value judgement (Weber 1949). Social constructionism (Berger & Luckman 1967) relates what science has characterized as objective facts to the processes of social construction with the goal to show the reverse, that it is the human subjectivity that has imposed itself on those facts we take to be objective. Adherents of social constructionism claim that the elements that we accept as forming part of the real world do not have to be visible, tangible and purely objective. Rather, our shared beliefs, social structures and culture, despite of being invisible and subjective, form entities of social objects and hence are real for humans beings – just as any other aspects in the physical and natural world.

Interpretive studies take a nondeterministic perspective on the world with the goal to increase understanding of the phenomenon within their cultural and contextual situation. Interpretivist researchers assume that people create their own subjective meanings to things as they interact with the world around them (Orlikowski & Baroudi 1991). Schultz (1962) conceptualizes the subject meanings as meanings constructed by the human subjects in the social setting, which the social scientist seeks to explain. So when the interpretivist researcher studies phenomena, she tries to access these meanings that participants assign to things. It is important that the phenomenon is examined in its natural setting and from the perspective of the participants. We can conclude that while in natural sciences the researcher and phenomenon of study exists independently, this cannot be asserted in social sciences. Giddens (1987: 19) notes that unlike in natural sciences, in social sciences there is no way of keeping the concepts, theorise and findings of the researcher 'free from

appropriation by lay actors'. As the goal of IS research is to inform the practice of IS in organizations, the researcher and the phenomenon cannot exist independent of one another. In IS management, Baroudi (1985) argues that there is a reciprocal and reflexive relationship between IS research and social reality. As a result, claims of objectivity and value-neutrality in IS research, according to Orlikowski and Baroudi, may be misleading.

This research is an exploratory investigation into the *ways* in which strategizing is pursued via IS. The study of the interrelation between IS, strategic actors and the strategizing context calls for philosophical assumptions and a methodology, which do not reject the inter-subjectivity of the chaotic and ambiguous social world, nor completely abolish objectivity and structured thinking. Having said that, the reasoning process that interpretivism offers is believed to be most appropriate. Here, the structured yet flexible framework will guide the researcher through the maze of subjectivity in the socio-political and culturally diverse world, while the emergence of new phenomena and re-iterative interpretation will keep the assumptions of the framework in check. Hence, the use of the IS strategizing framework along with interpretivism is seen as a powerful way to reach new explanation and understanding.

While the positivist searches for factual and objective situations and events, the interpretivist seeks a *relativist* understanding of phenomena. The researcher does not assume that reality is objectively given, where she can apply measurable instruments to test theory in an attempt to predict phenomena in the future. No specific expectation or assumption is adopted as to the existence of certain technologies, social systems, or any other component. There are no predefined dependent and independent variables. The focus is on the full complexity of human sense-making as situations emerge (Kaplan & Maxwell 1994).

To illustrate the position of this research more explicitly, we refer to the frequent cited work of Burrell and Morgan (1979), who suggest four paradigms for the analysis of social theory.

	The Sociology of Radical Change		
SUBJECTIVE	Radical Humanist	Radical Structuralist	OBJECTIVE
	Interpretivist	Functionalist	
	The Sociology of Regulation		
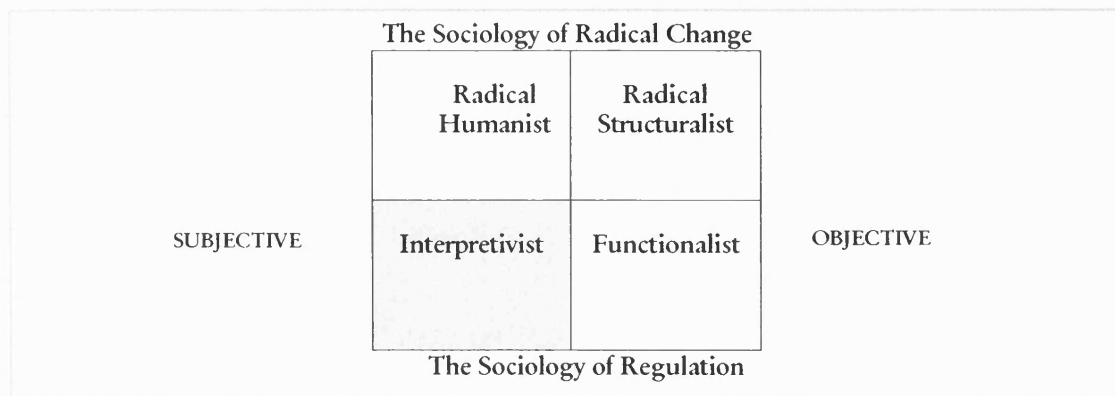
Figure 4.4: Four paradigms of social research (Burrell & Morgan 1979)

The framework is based on two fundamental dichotomies which have been discussed. The first is the ontological distinction between objective and subjective realities, and the second between those who view the world as conflict and pursue radical change versus those who see the world as table and pursue a path of regulation. In accordance with this framework, this research takes a subjectivist view and is located within the interpretivist paradigm. The researcher seeks 'explanation within the realm of individual consciousness and subjectivity ... and understanding of the subjectively created social world 'as it is' in terms of an ongoing process' (ibid). Hence, the underlying epistemology, which guides the research will that of interpretivism. To that end, the theoretical framework will serve as a conceptual sense-making vehicle to the research enquiry in the hope that this would help understanding the whole somewhat better. The aim is not to build generalizations, but to try to explain a particular corner of the world in a reasonable way based on choice of theory and methodology and the ways in which they are applied. Neither is the aim to find causal relationships in order to predict future behaviour. The remainder of this section will expand on the underlying philosophical assumptions.

4.2.2 Interpretivism & Hermeneutic Inquiry

This research is positioned within the interpretivist paradigm and uses hermeneutic inquiry as a research method. Interpretive research methods have been increasingly used by the IS community (Walsham 1995b) to understand human thought and action in social and organizational contexts in order to create insights into IS phenomena (Klein & Myers 1999). The assumption of the interpretive researcher is that reality is accessible only through social construction such as language, consciousness and shared meanings (Myer

1997). Examples of an interpretive approach to qualitative research include the work of Boland's (1991) and Walsham (1993), for example. According to Walsham (1993: 4-5), interpretive methods of research in IS are 'aimed at producing an understanding of the context of information systems, and the process whereby the information systems influences and is influenced by the context.'

Klein and Myer (1999) suggest a set of principles for the conduct of interpretive research which will be covered in this section. According to Schwandt (1994: 118), the interpretivist tradition steers the researcher towards:

> Understanding the complex world of lived experience from the point of view of those, who live it. This goal is variously spoken of as an abiding concern for the life world, for the emic point of view, for understanding meaning, for grasping the actor's definition of a situation, for Verstehen. The world of lived reality and situation-specific meanings that constitute the general object of investigation is thought to be constructed by social actors.

What is crucial in this process is that the social scientist has to gain access into the social actor's understanding of the world through fieldwork in order to create this *Verstehen*. The research then has to indirectly encourage social actors to reflect and discover their own meanings. What sets it apart from positivism is that it takes account of social life by drawing upon taken-for-granted beliefs and practices and tries to articulate them in order to provide an understanding of these actions. Traditionally, interpretivism takes the ontological view that social reality is a product of processes by which human actors negotiate the meanings of actions and situations. These processes of interpretation represent human experience and the skilled accomplishment of grasping the social world. Its epistemology implies that knowledge is derived from everyday concepts and meanings, where the researcher enters the social world (e.g. through participation observation) in order to grasp the socially constructed meanings and reconstruct them in a social scientific language.

The intellectual tradition of this approach lies within hermeneutics, sociology and phenomenology. From this paradigm, knowledge takes the following perspective (Guba & Lincoln 1994: 113):

> Knowledge consists of those constructions about which there is a relative consensus (or at least some movement towards consensus) among those components (and in the case of more arcane material, trusted) to interpret the substance of the construction. Multiple "knowledges" can coexist when equally competent (or trusted) interpreters disagree.

The interpretive school of thought challenges the more conventional and objective thinking that promotes key success factors, fixed 'best practices', and 'cookie-cutter' models of competition by illustrating the rather uncertain, intermingled, and dynamic factors of organizational life, work processes, and knowledge activities. The assumption of interpretivism in social research is that data are not just sitting out there to be gathered. The so called 'facts' may be produced as part and parcel of the social interaction of the researcher with the world. The interpretive approach sees the world as something that can only be interpreted, never fully specified or reduced to theories (Galliers 1991). This approach is appropriate because IS include people, which capture the variability and psychological opaqueness of the human mind and intentions (ibid). The interpretive effort lies in making sense of the whole by exploring the parts and the dynamic relationship between the organization and IS components. In this research, the 'whole' represents the wider socio-technical context through the organizational II, which is composed of 'parts' such as IT, social systems, roles and skills. Human agents are the active 'parts', which interact with and within the 'whole' and hold incomplete and contradictory views on many issues.

Another aspect that this research appreciates is that the hermeneutic task encourages the researcher to bring out any tension between the text and the context instead of covering them up (Gadamer 1977). This is congruent with the study of strategizing and the strategic actor in various contexts, e.g. different origins and sectors. The aim is not as much to study the particular case company, human agents, or a technical artifact, as it is to try to make sense of the manners in which strategic actors with substantial corporate responsibilities engage in daily decisions in their respective circumstances. As a result, the research will take an open attitude while taking a critical stance on the data collection and analysis.

A major philosophical base of interpretive research is hermeneutics (Boland 1985). Hermeneutics can be treated as both underlying philosophy and mode of analysis (Bleicher 1980). As a philosophy, it provides the grounding for interpretivism (Klein & Myers 1999). As a mode of analysis, it provides an approach to understand textual data. While the researcher understands the depth and breadth of this philosophy, this section only captures a limited view on it. Generally, hermeneutics is derived from the Greek word 'hermeneuein' (meaning to 'interpret') and its derivate 'hermeneia' (meaning 'interpretation'). In sociology, it was most heavily influenced by German philosopher

Gadamer and his teacher Heidegger. Although, like most other approaches, there are multiple perspectives, it may be generally described as 'the theory or philosophy of the interpretation of meaning' (Bleicher 1980: 1). In sociology, this is described as the interpretation and understanding of social events by analyzing their meanings to the human participants and their culture.

Hermeneutics is primarily concerned with the meaning of a text or text-analogue, such as any human artifact, action, organization or culture (Myers 1997). The goal is to achieve human understanding. Schleiermacher (1799-1834) conceived hermeneutics as being the art or science of understanding. Specifically, he stressed the importance of the interpreter in the process of interpretation and argued that the interpreter's understanding of text is a necessary stage to its interpretation. This understanding involves knowledge on the part of the interpreter of the historical context of the text and the psychology of the author. It differs from other interpretive schools in that it emphasizes the importance of the content and the form of any given social behavior. The central principle is that it is only possible to grasp the meaning of an action or statement by relating it to the whole discourse or world-view from which it originates, i.e. seeking meaning in context (Klein & Myers 1999). Any action isolated from its original context is seen as meaningless, which implies that the what, when, and how does not matter as long as we do not know the why and for what purpose. For instance, the action of putting a piece of paper in a box is meaningless unless we know that it happens in the context of, say, a democratic election (ibid).

Nevertheless, most theories in epistemology tend to be largely speculative. Although epistemologies are necessary to research, it can be argued that most of them are imposed upon the world are artificial constructions of some philosopher's speculations as to how researchers must obtain and validate their knowledge. In many instances, the epistemological philosopher has some agenda where he is deconstructing the world and presenting it as set of confusing phenomena as to creating a mass of epistemological pedantry. To create order and logic from this chaos, she then applies her own lens (or *Weltanschauung*). Nevertheless, although a healthy scepticism allows for an interesting critical analysis of various philosophies, a key task is to find the most appropriate philosophical epistemology that suits the objective and context of one's particular research.

In this thesis, strategizing, strategizer and IS are examined in a relatively new light. The philosophy of hermeneutics is seen as a suitable paradigm for understanding the process of using IS in strategizing. While hermeneutics as philosophy will be used to a limited yet relevant extent, the mode of analysis does involve hermeneutic techniques (Gadamer 1975; Boland 1991, etc.) to identify and describe the issues associated with the use of knowledge on a strategic level. This will be explained further in the next section.

4.2.3 Mode of Analysis

Qualitative modes of analysis are often concerned with verbal or written textual analysis (Myers 1999). A primary mode of analysis in this research is hermeneutics within the interpretivist approach (Boland 1991; Lee 1994; Myers 1999). In IS research, hermeneutics can be used to study the nature of information and IS (Klein and Hirschheim 1983). Hermeneutics is suitable because its underlying assumptions match those of the research enquiry as portrayed by Taylor (1976: 153):

> Interpretation, in the sense relevant to hermeneutics, is an attempt to make clear to make sense of an object of study. This object must, therefore, be a text, or a text-analogue, which in some way is confused, incomplete, cloudy, seemingly contradictory – in one way or another, unclear. The interpretation aims to bring to light an underlying coherence or sense.

Hermeneutic techniques have contributed to the identification and description of the issues associated with the use of organizational knowledge at the strategic level (Alavi & Leidner 1999; Nonaka 1994). Boland (1991) was one of the first to suggest the use of hermeneutics as a means of looking at the sense-making process in IS (Myers 1994). Lee (1994) studied the richness of email communications in organizations by drawing upon hermeneutics to explore the wider social and political context within which email communication took place. By doing so, he was able to show the complex world of social constructions revolving around the use of email communication.

4.2.3.1 Hermeneutic Circle

A fundamental concept in hermeneutic philosophy is that of the hermeneutic circle (Myers 1999). It refers to the dialectic between the understanding of the text as a whole and the interpretation of its parts (Gadamer 1977: 117). Hermeneutics is concerned with the basic question: what is the meaning of this 'text'? (Radnitzky 1970: 20). For interpretive case

studies in IS, the 'text' is social and political action, whereby notes, interviews and documents record the views and perceptions of actors to describe certain events (Myers 1999). This material is recorded, explained and interpreted through the theoretical framework and supporting theories. Here, prejudices (*Vorurteile*), assumptions and preconceptions are also put to test in the iterative process presented by the hermeneutic circle.
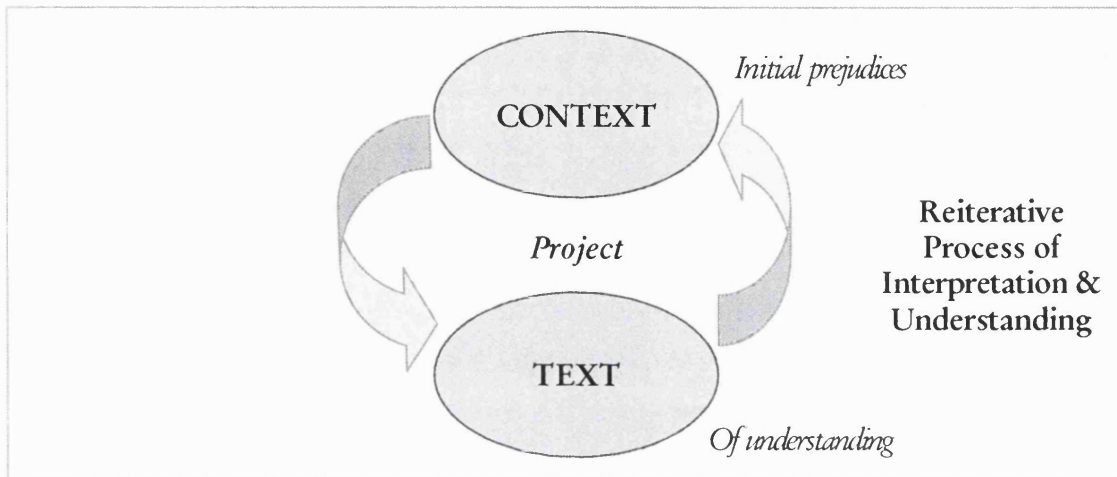
Figure 4.5: The hermeneutic circle (Gadamer 1989) Source: Introna (1997: 65)

Gaining understanding is a reiterative process, which is created by moving 'constantly from the whole to the part and back to the whole' (Gadamer 1977: 117). This process indicates that neither the parts nor the whole in isolation can be understood without reference to one another. Notably, the 'whole' implies that text must be understood as it is found in its cultural, historical and literary context. The circle implies that the researcher projects significance on the text and allows the text to inform their initial understanding of the world. In the pursuit of creating a new sense of the world, we continually adjust our point of view within our own tradition and try to connect new findings into a new whole. Hence the reiterative process of projection and movement between text (the part) and context (the whole) creates the possibility for new explanation and understanding.

When the process is applied to dialogue, each participant injects a new perspective and engages in understanding a text by means of the hermeneutic circle. Hermeneutics assumes that the researcher's presuppositions affect the gathering and analyzing of data through the ways in which questions are posed to informants and the ways in which responses are understood (Bleicher 1980). Hence, as the data affect the analysis, also the analysis affects

the data. Likewise, the writing up is an iterative process in which data are constantly revisited. In the course of interpretation, the interpreter continuously revisits the real world in an attempt to create a bridge between what is already known and what is still unknown. The researcher compares different texts with one another (e.g. statement of interviewees with that of a written document) and also looks for variations or consistencies among the informants' statements and with the relevant literature. Understanding becomes more apparent as the whole is continually revised in reinterpreting the parts and the absurdities, contradictions and oppositions no longer seem strange, but make sense (Myers 1994). Exercising this task in the context of the whole provides the researcher with new references and examples to draw upon in the search for new meaning.

In this hermeneutic circle, meaning is created when the interpreter brings to bear her own perspectives and prejudices (*Vorurteile*) of the world. Prejudices here do not have a negative sense; rather Gadamer sees these as the initial understanding of the researcher, which is changed into a new understanding once a new interpretation is reached. According to Gadamer, we cannot simply forget or hold blind to our own *Vorurteile* of the world; however, what we can do is to remain open to the other person or text. By accepting our pre-judgments and being open, we can create new understanding. We can only create new understanding based on what we already know (Gadamer 1989). Therefore, the hermeneutic task is the process of using our own biases and at the same time anticipating the possibility that the text may challenge these fore-meanings (Introna 1997). According to Gadamer (ibid: 238):

> The hermeneutically trained mind must be sensitive to the text's quality and newness. But this kind of sensitivity involves neither 'neutrality' in the matter of the object nor the extinction of one's self, but the conscious assimilation of one's own fore-meanings and prejudices. The important thing is to be aware of one's own bias, so that the text may present itself in all its newness and thus be able to assert its own truth against one's own fore-meanings.

The process of bridging the alien with the known is referred to as appropriation (Ricoeur 1979). Hermeneutic philosophers suggest that we only come to a meaning if we appropriate the meaning of text for ourselves and make it our own. This act of appropriation is essential for understanding to take place (Myers 1999). A practical component of this process is the notion of *Erlebnis*, or lived experience, which is a key concept for Gadamer (1989). *Erlebnis* refers to the significant whole within which the parts reside. According to Hegel (In Gadamer 1989: 318): 'the principle of experience contains the infinitely important element that, in order to accept a content as true, the man himself

must be present or, more precisely, he must find the content in unity and combined with the certainty of himself'. This experience may be conceived as difficult and painful to go through where the person, with an element of disillusionment, has to remain open to all possibilities in order to learn. Crucial to this *Erlebnis* is the openness of the researcher to all possibilities. This implies a certain not-ness, that the interpreter is open to experiencing something that was not assumed it would be. Only this way it is possible to overcome the subjectivity of the researcher herself and open a space within which interpretation becomes possible.

Along these lines, Gadamer argues that hermeneutic understanding is rooted in *Praxis and Phronesis* (ibid). *Praxis* is referred to as informed practice rather than an antithesis of theory. It is conceived as being inseparable from action; as being able to play the game rather than knowing the rules of the game. To Gadamer, it is the *Praxis* component which is most important layer of meaning and only with this element would theory and methodology make sense. Furthermore, hermeneutics is rooted in *Phronesis* (practical wisdom), which is required in order to achieve understanding (Gadamer 1989). *Phronesis* is a form of reasoning that involves a distinctive mediation between the universal and the particular (Bernstein 1983), for example perceiving what is at stake in a given situation. Or, according to Hoy (1978: 58), it combines the generality of reflection of principles with the particularity of perception into a given situation. It is through fusing the *Phronesis* and *Praxis* that makes it possible to create understanding. As an entry point, one starts with initial pre-judgments of the world. As the researcher exposes herself to the lived experiences of the real world context through *Erlebnis*, she remains open to new worldviews through that *Erlebnis*, providing the referential whole to allow the interpretation to be significant. In this process, *Phronesis* is critical, that is, the researcher's ability to separate the essential from the non-essential as to translating from the universal to the particular.

The object of the interpretive effort is one of attempting to make sense of the organization, where human agents are confused, incomplete, and have contradictory views on issues such as ICTs, IS strategies, the meaning of information, relationship between people, and the manners in which knowledge is shared, for example. The empirical work is conducted across two case studies. In the context of this research, the use of hermeneutic concepts is part and parcel of the hermeneutic tradition, and will be crucial to forming an understanding of this 'messiness'. Similarly, and although the components of analysis have

been identified as those portrayed by the IS strategizing framework, the researcher is open to perceive other emerging elements in the world that interact with individual parts of the framework and as a result change the dynamic interaction among them as a whole. As a result, the principles of hermeneutic philosophy and the approach of hermeneutic circle as a mode of analysis are seen to be invaluable given the nature of the topic, the objective of the research, and the background of the researcher.

At the same time, and like any other method, there are several shortcomings in using interpretivism which come to light depending the particular research and researchers. In general, interpretivist approaches assume that competent social actors engage in a continuous monitoring of their conduct. There certainly is more to reality than is expressed in the language of social actors, of which the social scientist should be aware. Inherent to the interpretation process is the commitment to be continually challenged by the text and not jump into premature conclusions. Once the researcher is not open she falls into subjectivity. Furthermore, intererpretivism fails to acknowledge the role of social structures that produces social interaction, particularly divisions of interest and relations of power (Mingers 2001, 2003). Although the researcher tried to be aware of potential interaction of these power relations while conducting the empirical work, these could not be explicitly captured to be reflected in the sense-making process. Possible structures of conflict in social-technical relations may have been completely ignored had the interpretivist been conservative. These and further limitations of methodology will be addressed in chapter 8.

Despite potential shortcomings, interpretivism has a major strength which other research approaches dismiss; namely, the richness and depth of exploration will result in sufficient details for the reader to grasp the idiosyncracies of the situation (Myers & Avison 2002). The next section will outline the methods chosen for gathering the empirical data which will be interpreted within the hermeneutic circle.

4.3 RESEARCH STRATEGY

This thesis is based on two interpretive case studies that consider the domain of strategizing. Strategizing is understood as a process made explicit through decisions, sense-making and judgement-making in the every day chaotic and messy world of upper managers working in global companies. Given this complex and ambiguous nature of the inquiry, any chosen research method influences the way in which data is collected.

This research chooses qualitative case studies as an empirical inquiry. Data collection methods include semi-structured qualitative interviews and observation across two main case studies. Case studies are one of several ways in doing qualitative research, and one of the most common qualitative methods used in IS (Orlikowski & Baroudi 1991; Alavi & Carlson 1992). As with philosophical assumptions, case study research can be positivist (Yin 2003), interpretive (Walsham 1993), or critical. The philosophical assumptions behind the case studies are interpretive. Furthermore, case studies may be used to describe a unit of analysis (e.g. the study of a particular organization) or to describe a research method. Since the object of our interest is not a specific technology, strategy, or organization, this research is concerned with case study as an interpretive research method.

The case study method is well-suited because interest has shifted to organizational rather than technical issues in the study of IS in organizations (Benbasat et al 1987). Yin (2003) defines the scope of a case study 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. While not everything can be captured, qualitative case studies permit a better understanding of organizational complexity from an insider's viewpoint (Mitchell 1983), and allow the formulation of a more holistic perspective of the phenomena being studied (Van Maanen 1979). The aim here is to see the 'whole' picture, by investigating the constituent 'parts' with respect to their interaction in their respective context. Therefore, case study research provides a suitable grounding to explore some of the influencing factors that interact with the research object and shape its behavior. Having introduced the philosophical assumptions and research method, the next section outlines the ways data were collected.

4.3.1 Data Collection

First, while this thesis refers to the word 'data' frequently, it should be acknowledged that there has been a potential unease attached to the term 'data collection' for interpretivist researchers. Since the term implies positivistic assumptions that 'data' exists independent of the observer, which can be 'collected' from the outside world, goes against the beliefs of an interpretivist, a more suitable term may be 'empirical materials' (Myers 1999). Nevertheless, while the researcher may speak of 'data', the assumptions are that of 'empirical materials'.

Data collection techniques vary largely in the literature (e.g. Denzin & Lincoln 1994; Miles & Huberman 1984; Rubin & Rubin 2005; Silverman 1998). Yin (2003) suggests six sources: documents, archival records, interviews, direct observation, participant observation, and physical artifacts. Written data sources may include published and unpublished documents, company reports, memos, letters, reports, email messages, faxes, newspaper articles and so forth. It is difficult to choose the number and depth of sources in an interpretive research, since findings may emerge from various places in an unstructured way. The variety and depth of each source influences the nature of data, its interpretation and conclusions drawn, as each may shed a different light on the same reality.

This research finds interviews, documentary materials (as of the written sources) and observations as suitable sources to explore the practice. Walsham (1995) argues that interviews are important for data gathering in a qualitative case study, as they help the researcher to capture the richness of context and identify differences in informants' beliefs and perceptions. According to Rubin and Rubin (2005: vii), interviews are like night goggles 'permitting us to see that which is not ordinarily on view and examine that which is looked at but seldom seen'. Combining interviews with written sources and observation allow the researcher to make explicit certain elements that the other might not have identified, or captured in a different light (i.e. in different contexts).

Hence, the researcher leverages the opportunity to go back and forth between the components and the findings of each method in an attempt to look for confirmation or discrepancies in the processes of understanding. For example, the first case study was heavily based on interviews and less observation, whereas the second case involved relatively more observation than interviews. While interviews allow the researcher to

explore the areas that can be expressed in words by informants, observation informs the researcher about the aspects that cannot be easily articulated by words, or are taken for granted. The strength and shortcomings of each are elaborated below.

4.3.2 Qualitative Interviews

Interviews are one of the major methods for gathering data in qualitative research (Myers & Newman 2007). In unstructured and semi-structured interviews, the researcher prepared a set of questions, or an incomplete script, to serve as a guide during the interview process. The incomplete script gave the researcher flexibility to improvise during the investigation and allowed her to become more receptive to new cues and emerging phenomena to control the direction of the process (ibid).

To prepare for semi-structured interviews in this research, ten pages of questions, notes and themes were prepared as areas for investigation. The questions were designed as to reflecting the key literature and components of the IS strategizing framework. During the interviews, the framework was a helpful guide to navigate an array of topics without losing sight of the bigger picture. Prior to interviews, the researcher provided the informants with her research proposal and explained her role. While the majority were cooperative, there were some who were more reserved and less participative in an open discussion. The range of different perceptions is due to many reasons, for example the individual's position in the company and potential political tensions in their circumstances, their functional responsibilities and their particular interest to the research questions, and so on. Notes were taken at all interviews; perceptions and apparent body language of respondents were also noted.

Having said that, qualitative interviews present many difficulties, pitfalls and challenges that have been taken for granted by many researchers. The researcher faced some of the pitfalls in the beginning and during the interview process. For example, being rather overambitious at the start, the focus was more on the responses/data rather than on the process itself. In the process of the fieldwork, the researcher's sensitivity matured in learning how to manage the interview process better, how to fine tune the questions, and how to ask them to enhance the chances for getting higher quality of responses from the interviewees, although in an interpretive research, 'higher quality' in itself is a subjective statement. Myers and

Newman (2007) point out nine of potential pitfalls: level of entry, artificiality of the interview, lack of trust, lack of time, elite bias, Hawthorne effects, constructing knowledge, ambiguity of language, and communication problems. Although the researcher is aware of all of the above, this section will expand upon those that were encountered

With most researchers in IS and strategy, the first challenge in collecting data is finding access to suitable companies and the level of entry. The level of entry is a crucial step to the researcher (Buchanan & McCalman 1988). If the researcher's entry point is at a lower level, it may be difficult to interview senior managers at a later date. There were many attempts to access senior managers in various global companies. However, most of the initial contacts were at the middle level and there was no way any insider could break through the gatekeepers of the corporate hierarchy and ask senior managers for such a favour.

Once access was achieved, there was the challenge of managing the interviewees and the interview process itself. Myers and Newman (2007) talk about the difficulty of building trust and interrogating a stranger to form opinions under time pressure. Web and colleagues state that interviews 'intrude into the social setting they would describe, they crate as well as measure attitudes, they elicit atypical roles and responses, they are limited to those who are accessible and will cooperate … ' (Webb et al 1966). Most often, the interviewer is a stranger who intrudes into existing social settings, unaware of potential tensions among the people and unfamiliar with the culture, and constructs a stage upon which the researcher and the expert play their roles. Interviewing strangers poses difficulties in that noting perceptions and reactions of particular people might not be accurately judged while they respond to questions. Furthermore, responses of the informants are highly influenced by their relationship to the company at that particular time, keeping in mind the scope of responsibilities and political tension. Choose the right time, although cannot be foreseeing, is important.

A major role of the researcher during the interview process is to narrow the expert - researcher divide in order to better orchestrate the conversation and manage perceptions. Nevertheless, the interview stage is still an artificial construct (Myers & Newman 2007), whereby the interviewer is actively constructing knowledge (Fontana & Frey 2000) and the interviewees are constructing their own stories in a way to come across as knowledgeable, rational and consistent. At the same time, while they are constructing their stories, they

reflect upon issues that they may not have considered so explicitly before (ibid). Hence, conveying trust is an important issue while they are constructing their stories, specifically when keeping in mind that the majority of responses do embody the history of personal and professional relations with the organization. Another challenge was the different conceptualizations of the same themes among practitioners and academics (e.g., 'strategy', 'decision making', 'knowledge', and 'knowledge management'). After the first few interviews, it was clear that the researcher needed to ask for clarifications on definitions in order to create common ground. Speaking the language of practice is important because it determines the informant's reactions and the way they think about the issues.

In the search for meaning, language is another element that cannot be underestimated (ibid). Even if the native language of all actors were English, there are still challenges of communication, and the issue of interpretation. As Fontana and Frey (2000: 645) argue, 'asking questions and getting answers is a much harder task that it may seem at first. The spoken or written word has always a residue of ambiguity, no matter how carefully we word the questions or how carefully we report or code the answers'. Nevertheless, the choice of words and explicit communication is influenced by many factors that are difficult to detect and follow up on, in view of, for example, the underlying believes, values, and mind-sets.

Further, most of the second round interviews with the same people were different in regards to their responsiveness and openness. This may have been an issue of trust, changed perceptions about the subject, time, or simply mood. At least, being willing to devote more time to the same research inquiry for a second time indicates that they had an interest in further discussing the subject. An interesting observation and perhaps a frustration with interviewing senior managers was the 'give-me-a-solution' attitude in the first rounds, where they had hoped that the researcher would suggest unpublished statistics or findings. However, at the end of the hour of having them talk about their concerns, some interviewees acknowledged the value of insights they gained during the discussions.

4.3.3 Observation

Marshall and Rossman (2006) explain that observation may be used to discover complex interactions in natural social settings. Careful observation is a great supportive method to:

- Make note of more subjective cues in actions and behaviour that are hard or impossible to let emerge during semi-structured interviews, i.e. sudden reactions to changing context, perceptions, body language, tone of voice, attitude, and so forth;
- It is also a powerful method to identify potential discrepancies between that what was observed and that which was claimed earlier in a different time and context.

Observations included asking the people involved to think out loud, listening to phone calls, observing strategy meetings, and observing daily strategizing and the use made of IS as part of the process. These allowed the researcher to look for cues while social actors were in their natural setting. It must be acknowledged that confidentiality was maintained throughout the empirical work, and in writing up. Furthermore, observation was used to:

- Take note of events that were difficult to grasp during an artificial expert-researcher interview setting;
- Overcome some of the language barriers during interviews, for example when informants' priority is to be politically correct than truthful, and
- Grasp some aspects that are hard to articulate in words, for example the perceptions and reactions to emerging organisational events that shape the decision makers' actions – 'people know more than what they can tell' (Polanyi 1966).

Observation entails note-taking of events, behaviours and artefacts in a social setting (DeWalt & DeWalt 2001). The field notes were non-judgmental descriptions of what was observed. The process included carefully observing a pattern of the persons' re-/actions and decisions over a certain amount of time and across various tasks while getting acquainted with their values, beliefs and priorities; having them articulate what is behind their thinking of a certain strategy and having them elaborate on the parameters that influence their line of thinking. Observing and most of all listening in a natural setting provided a set of interpretations that interviews alone would not have captured. At the same time, observation as a sole research method would not have been too subjective, given the feasible/limited boundaries between the researcher and the informants.

The researcher observed managers/advisors engage in their work across different scenarios and in different contexts, such as client meetings, office, formal and informal sessions, in teams and individually. This was not an easy task because while the researcher is looking for what really 'matters', at the same time, she herself is involved in the social process to some extent. The quality of data recorded improved over time as the researcher developed

the sensory acuity to get a sense. Knowing the value of observation, this method also introduces discomfort, uncomfortable ethical dilemmas, specially being able to distinguish what is not being observed while keeping an eye on what is accessible. Notably, the research is not observing all team members every day at the same time. The time spent with each individual or teams is limited. Hence, the researcher only observed what is going on during her presence in a certain time and space. Such evident limitations as well as other rather complicated ones, such as the tensions in the socio-political setting, were noted in the analysis. The next section briefly sheds light on some more obvious challenges.

4.3.4 Potential Challenges

There are also limitations and challenges with regard to theoretical, methodological, philosophical and practical aspects of the research. While these will be discussed in the conclusions chapter, some more obvious considerations are noted here. There are inherent challenges associated with multi-theory and multi-method approaches in the social study of IS. Primary challenges are due to the ambiguous nature of theoretical concepts and the qualitative, interpretive nature of the endeavor. Interpretive ways to analyze data enhance the subjectivity of the findings, and hence, may be criticized for lack of concrete evidence. For example, one can never be sure how much the organizational context, history of organizations and their members, particular circumstances of informants, and their particular mood affect their perceptions to the questions and their responses. In order to overcome some of these challenges, multiple rounds of interviews and secondary methods were valuable supplements to complement any perceived gaps in findings. At the same time, the same challenges can be strengths of interpretive approaches. Interpretivism allows phenomena to be studied at a depth that quantitative methods would not allow, due to the inherent rigidity and concrete regimen of the latter. Many valuable findings would not have emerged had the research taken positivistic assumptions.

As a final note, this research does not expect any framework or methodology to reveal the truth about an organization or social phenomena. Indeed, it would be naive to believe that organizational complexity and ambiguous social phenomena may be reduced to simplistic findings and interpretations of a single researcher. The most this research can achieve is to understand a small corner of the chaotic social phenomena in fast changing and irrational organizations.

CHAPTER SUMMARY

This chapter introduced the S strategizing framework (Galliers & Newell 2003), which will be used as a way to structure the empirical process and analysis. Two major components of the framework – for the purposes of this research – are the socio-technical information infrastructure and IS strategies. A background to the underlying concepts was reviewed in chapters 2 and 3. There are two general objectives in applying the framework in practice:

- to explore the messy and chaotic real world in a more structured way, and
- to reflect back on the framework itself in an attempt to add new insights on the basis of new interpretations from the empirical findings and supporting theories.

Furthermore, the research considers perspectives from two different cultural contexts, Germany and the US, which will be incorporated in the discussion in chapters 6 and 7.

Research Objective	To explore *the ways* in which information and knowledge are leveraged through IS in the process of business strategizing
Theoretical Framework	IS Strategizing Framework (Galliers & Newell 2003)
Philosophical Assumptions Mode of Analysis	Qualitative, Interpretivism - The Hermeneutic Circle
Research Strategy Data Collection	Qualitative Case Studies: - Semi-structured interviews & written documents as supportive material - Observation

Figure 4.6: Summary of chapter 4

Philosophical assumptions of this research are those of interpretivism. Here, the hermeneutic circle serves the iterative sense-making process, where the empirical findings, the theoretical framework, and supporting theories inform each another in an attempt to let new insights emerge and create a richer understanding. Of course, any understanding reached is not an absolute; however, it will be a reasonable one based on the choices of theory, philosophy and methodology. Two qualitative case studies are conducted with interviews and observation as primary methods to collect data. It is believed that more diverse data will have more analytic benefits than single case studies (Yin 2003). The findings for each individual case will be analyzed within their own context and similarities and differences among them will be noted.

The next chapter will give a background to the case studies and outline the initial findings.

CHAPTER 5   BACKGROUND TO THE CASE STUDIES

*This chapter provides a background to the two case studies and
presents the initial findings.*

5   INTRODUCTION

This chapter gives an overview of the empirical work. The common 'denominator' of the two case studies will be the competitive bidding approach of each respective firm. The first section justifies the choices made and how access was achieved. Section 2 outlines the respective business strategies, and identifies characteristics of their IIs and IS as part of initial findings. These will be expanded and interpreted in chapters 6 and 7. The data sources include electronic and hard-copy material, e.g. company Intranet, brochures, business plans, and marketing material. Section 3 gives an overview of both cases to make explicit that which is being studied. A summary section follows.

5.1 OVERVIEW OF THE EMPIRICAL WORK

The period of data collection was spread between November 2001 and summer 2006. During the first year, the researcher conducted preliminary interviews at three companies: a strategy consulting firm, an IT and Engineering firm, and a global petrochemical firm. These were outlined in chapter 1. These provided the ground work for the rest of the research inquiry in fine-tuning the research questions, objective, and the researcher's skills.

The main analysis is based on two case studies, which are introduced in this chapter. Case study 1 is a hydro-power generation company, named HPC, with global headquarters in Germany. Case study 2 is a private bank, named PCS for private client services, with global headquarters in the USA. Most data were collected using semi-structured interviews and observation. Some document research and informal conversations were also conducted. Findings arising from the two case studies are presented in chapter 6 in the form of 'raw data' and are analyzed and discussed in detail in chapter 7. The box below gives an overview of the empirical work. In order to respect the confidentiality requests by the companies, details of interviewees will remain anonymous. This will not affect the quality of the interpretive study in any way. Throughout the thesis, the text will refer to abbreviations in correspondence with the cases and individuals, as noted in the box below.

Preliminary Studies: Interview-based (see Appendix)   Nov 2001 – Dec 2002

1. Strategy Consulting firm
2. IT & Engineering Company
3. Petrochemical Company

CASE 1: Hydro Power Company (HPC)   Apr 2003 – May 2005

    Locations:
- US Operating Unit (OU), also HQ to North-America
- German OU, global headquarters

    Data Collection:
- 33 Semi-structured interviews: on-site and telephone
- Also: Conversations and meetings; frequent correspondences via E-mail
- Other sources: Company documents: business strategy plans, marketing material, Intranet, Internet site, company publications

CASE 2: Private Client Services (PCS)   Nov 2005 – May 2006

    Location:
- A US subsidiary of PCS

    Data Collection:
- 13 semi-structured and unstructured interviews
- 6 months on-site observation
- Also: Conversations and meetings
- Other sources: company documents: marketing material, Intranet, Internet site, public information

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Figure 5.1: Overview on the empirical work

Below, more details about the case companies are provided:

Case Companies	Sectors	Data Collection
Case I: HPC (Private) US & Germany	Mechanical & Electrical Engineering – Hydro Power	Interviews at German & US HQs
Case II: PCS (Public) US	Financial Services firm – Private Banking division	Interviews & Observation at a US subsidiary

Figure 5.2: The case companies

The diverse nature of the case companies called for different ways to collecting data. While both include interviews as method, the investigation into Case 1 was spread over a two-year period and considered contextual factors. This involved several travels between the German and US offices. The investigation into Case 2, however, was conducted in one place and was more condensed. This involved everyday on-site observation for a period of 6 months. Hence, these will affect the ways the data will be presented and analyzed.

In Case 1, semi-structured interviews were conducted in the German and North-American headquarters, requiring two trips to each site. Besides on-site interviews, members who were on business trips had to be interviewed on the telephone. While all interviews were conducted in English, conversations outside of the interview period were held in German. In addition to semi-structured interviews in Case 2, the opportunity to include observation proved to be valuable. This way, the researcher was able to collect first-hand empirical findings on what is involved in strategizing processes, rather than relying on theoretical assumptions from the selected literature. It helped to capture aspects of managerial activities, which are not naturally articulated in words during interviews, for example, how an advisor reacts to a sudden shift in a situation, and how this affects the use of IS.

In order to establish a common ground for the Cases, a 'common denominator' was set to be their respective competitive business strategies (i.e. business development activities). Hence, while the nature of managerial strategizing work is thought to be similar in both cases, the internal socio-technical contexts are different. On this basis, senior managers at HPC and senior advisors at PCS inform us in how they leverage information and knowledge in their respective business strategies, external competitive environments and internal socio-technical context. Before embarking on the details, the next section justifies the choices made and how access was gained.

5.1.1 Case Selection

Several decisions had to be made in conducting the empirical work. These will be outlined below in terms of the choice of the companies, locations, and the group of selected interviewees.

1. Why companies with global presence
2. Why USA and Germany
3. Why the particular sectors
4. Why the group of interviewees.

1. Global Presence

Both companies have global presence. Fairly enough, while a global presence was not a requirement for this study, it was more an intellectual curiosity based on the following assumptions:

- Organizations with locations across the globe have more diffused resources, which need to be managed;

- The diffusion makes knowledge processes very complex;

- Hence, one would assume these companies would already have strategies to manage diffused resources.

The curiosity is in investigating how decision-makers in competitive and fast changing environments leverage dispersed intangible resources with respect to management IS. For example, to what extent do experienced managers see a need for comprehensive IS in direct relation with the complexities of their organizations? Literature suggests that the complexities of the nature of work increase the skill and knowledge requirement of top management, where the firms need more resources from both inside and outside (Knickerbocker 1973; Eisenhardt 1989b; Weick 1995; Gomez-Mejia 1997). Here, the literature argues that strategic IS are significant to decision-makers (Ancona & Nadler 1989). Thus, one might think that such organizations find it necessary to put mechanisms in place to process and disseminate the information required for strategizing purposes.

2. Origin and Locations: USA & Germany

Interviews were conducted at PCS's US location, and HPC's US and German locations. Although this is not meant to be a cross-cultural study, shedding light on perspectives from

German and US operating units may offer additional insights and contributions to the research inquiry. Much of the cross-cultural studies have treated IS under the 'Western companies' umbrella. Although German and US-American cultures may be similar in many ways, the world views of managers are quite different, which have implications on strategizing, perceptions towards IS and the use thereof. In that sense, there is an attempt to capture the elements that influence the use of IS, which stem from different ways of thinking. The US and German locations were of interest because of the researcher's background and experience in the respective cultures. While the researcher is familiar with the general thinking and cultural attributes of each place, she is not native to either culture and therefore is in a position to draw upon differences and similarities without a native bias.

3. Sectors and Business: Engineering and Financial Services

Business development processes in the hydro power and financial services sectors share similar criteria: both are knowledge-intensive sectors with the following requirements:

- Technical knowledge on customized products and services
- Business knowledge (on processes such as global sourcing and dealing with multiple vendors, marketing and sales / customers)
- Management and organizational knowledge for operations, strategizing, planning, and sharing know-how across functions and units.

Furthermore, the business strategies of both cases are built on a competitive bidding model, where engineers and advisors apply their technical knowledge and commercial experience to build a business case and compete in their markets.

4. Selection of Interviewees

Primary interviewees are experienced members of business development teams, whose decisions carry considerable influence and responsibilities. These include front-end managers and those who work with them as part of the organizational information and knowledge infrastructure. Senior-level managers were chosen because the business unit's profit is dependent upon the performance of these actors, who are in most need for effective corporate collaboration mechanisms. Additionally, conversations with a few members of the back office, i.e. assistants and analysts, were held to understand various

issues around specific work processes in more detail. Their reflections were valuable because they provided front-end managers with data and information in the everyday strategizing work.

The next section outlines how access was established and specific sources of data.

5.1.2 Gaining Access

Access was established through cold-calling, 'cold-walking' and network-building. Perhaps it should be acknowledged briefly that the post 9/11 period during 2001-2002 made it especially difficult for the researcher to gain access to upper managers in global organizations. While great interest was expressed, the timing made it challenging to have this research project approved. At the same time, management turnover was considerably high with unstable corporate governance. Nevertheless, the efforts turned out to be fruitful.

5.1.2.1 Case 1: Hydro Power Company (HPC)

Access

Following several weeks of networking, contact was finally established in spring of 2003 with a senior proposal manager at 'HPC-US' in Pennsylvania (PA). The researcher sent her research proposal to the contact person, who forwarded it to the Human Resources directors of the offices in PA and in Germany. The contact person was the head of project proposals for all North-American businesses, overseeing engineers and the director of that operating unit (OU). Upon their agreement to participate in the research, interviews were arranged in cooperation with the HR directors at these two locations. The initial stages of communication were through email and telephone until the researcher visited both OU.

Visits to the US and German Power Plants

The researcher arrived in Pennsylvania in summer 2003 for a four-day meeting and interviewing with selected individuals. Managers and engineers were interviewed in the operations and management teams. In addition, many conversations were held with senior organizational members at lunch, and an extensive tour was given of the power plant facility. The researcher re-visited the US OU for additional interviews in November 2004. In the meantime, in April 2004, the German headquarters was visited for a three-day meeting, speaking with managers and engineers, and visiting the power plant facilities. The

location was re-visited at a later stage for additional interviews. The traveling between offices allowed contextual distinctions to be made, which helped to enrich the analysis. This also helped eliminate initial biases that an outsider might have when entering a new organization.

Interviews started with open-ended discussions on general issues in relations to the managers' roles, work processes, involvement with IS. Questions narrowed down to examine the type of corporate communication tools and their socio-technical environments. Each of these was explored in detail by asking interviewees to draw upon examples and their experiences. Despite the effort to follow a guideline of questions, in most cases it was not possible to maintain the sequence of questions. The researcher had to improvise to incorporate the comments and ideas of informants while maintaining momentum and focus. In most cases the result was a stimulating conversation as opposed to question and answer. In some cases, however, informants preferred a clear question to which they could give a concrete answer. Once the researcher picked up on their style, the approach re-adjusted. This is a valuable lesson with regard to interviewing technique rarely covered in research texts. The style also affected the duration of interviews. The range of interviews was between 30 minutes and 2 hours.

As indicated, English was the preferred language to conduct interviews to maintain consistency in responses. However, German was spoken outside of the corporate offices and in informal conversations. These added further insights to the responses. The roles of the interviewees were as follows: EVP (Executive Vice President) for Operations, Director of Human Resources, Manager for Manufacturing, Business Development managers, Sales manager, Regional Sales managers, Proposal manager, Director of Automation, Director of Project Management, Director for Field Operations, EVP of Technology, Corporate Controller, Proposal Director, Supply Chain Manager, President of the US operating units. See appendix for a list of interviewees.

5.1.2.2 Case 2: Private Client Services (PCS)

The second study was conducted at a private bank's US subsidiary. The purpose was to add additional perspectives from different contexts to the research inquiry. Specifically, observation as method of inquiry allowed further insights to be gained into the micro-level analysis of the manager's decision activities in the context of competitive bidding, which

was not feasible at HPC. This was also an opportunity to closer explore the implicit dimension of the strategizing process.

Access

Access was established through cold-walking. In August 2005, the researcher approached the firm's subsidiary in the US. Upon an introduction, the office's director showed interest in the research. The researcher started in November 2005. Direct observation in November and December was rather slow because of the busy time of the year's end. The researcher used the opportunity to learn the nature of the business and get acquainted with the overall information processes. The engagement picked up in January and lasted until end of May 2006.

In the 6-months involvement, data was collected based on accessibility through (1) observation of day-to-day operations of advisors, and participation in company events, (2) unstructured and semi-structured interviews. Specific sources include:

- Interviews with advisors between 2-30 years of experience at the firm
- Conversations with their assistants to learn about information processes and systems
- Team meetings, knowledge sharing meetings, strategy meetings
- Having advisors 'thinking loud' while engaged in tackling emerging challenges
- Company documents such as marketing and business development strategies
- Public information and publications on the company.

Besides interviewing individuals (e.g. advisors, office director, specialists), it was necessary to use observation and limited participation as a way to better understand the business, as well as understand some of the unspoken rules of the culture. Had the findings been based on interviews alone, many aspects that are taken for granted by interviewees, but significant to understanding the dynamics, would not have been captured. While observation provided more richness to the interpretive inquiry, there were also some obvious shortcomings, such as inter-subjectivity of data, limited involvement of the researcher, and not being completely aware of the history of advisors and associated organizational memory. Further details on method and methodology were discussed in chapter 4.

5.2. CASE STUDIES: INITIAL EMPIRICAL MATERIAL

This section describes the case companies in terms of their business strategies and identifies their general socio-technical characteristics. First, the study explored the strategizing work to identify the types of information and knowledge to get the job done. Then, it looked at the socio-technical environments which are assumed to be either enabling or disabling in what they entail.

	HPC	PCS
Origin	German	US
The Business	Hydro Power; manufacturer of turbines & generators	Financial services firm: private banking
Governance and Management Style	- Private/family-owned - Centralized, hierarchical governance - Substantial bureaucracy	- Public - Centralized control on operations, decentralized operational strategies
Locations of Study	- Corporate headquarters in Germany - North-American headquarters in Pennsylvania, USA	- A US subsidiary
Division under Study	- Business Development, cross-functional involvement with the project leaders	- Business Development, cross-divisional involvement with the financial advisor; primary activity is sales & marketing.
Nature of the Business Strategy	- Competitive bidding - Transition from old to new strategy: Design-Bid-Build approach → Alliance approach - Company motto: 'To provide complete power plant products and services to global clients at lowest cost'	- Competitive bidding - Transition from old to new strategy: Transaction-based business activities→ Fee-based & annuitized, Integrated advisory approach - Company motto: 'To provide broad range of products and services to individuals and corporations'

Figure 5.3: Details of the case companies

Discussions on outside interaction with suppliers and competitors will be limited due to the limited scope of the thesis.

5.2.1 Hydro-Power Company (HPC)

HPC is a hydro power division of the holding company, here called the H-Group, headquartered in German. The H-Group was founded by a German family in the 1860s and has grown into one of the largest family-owned companies in Europe. The company

possesses over 130 years of technical know-how and established management style. Upon successful executions, the founders expanded the turbine business by acquiring other power technologies. The family has been steadily and consistently growing to become a leader in the global hydro market.

HPC underwent a joint venture with the hydro-electric division of another global company to join forces to meet increased competitive market demands. The venture's mission was to provide complete set of advanced technology products and comprehensive services to a larger global client pool under the motto 'the entire is more than the sum of its parts' (company document). Upon the venture, the H-Group maintained the majority of corporate governance, operational and strategic control over HPC. HPC has employees across production and marketing & sales facilities in Europe, UK, central - and south America, North America and Asia. With the combined knowledge pool, HPC seeks to exploit on the organizational expertise and experience on the electrical, mechanical and commercial sides to create synergy among operations, marketing and sales. All managers have long-standing engineering and project management experience; most of the individuals interviewed have been with the company for over 10 years (with some well into 30 years).

HPC North-America and USA (HPC-US)

In the US market, hydro owners have been looking to increase energy production by upgrading their hydroelectric plants built in early 1900s through the mid 1980s, while the Canadian market is looking to construct new hydro facilities and modernize existing ones. Upon its joint venture, HPC-US has full range of power plant capabilities and seeks to meet market demands more competitively. Its position in the US and Canadian markets is to help customers evaluate, optimize and implement hydro modernization as well as in construction of new hydro plants. The headquarters of North-American operations is in Pennsylvania (PA), which possesses one of the most advanced power plant facilities manufacturing generators and turbines for large scale projects. The engineering is specialized in turbines, automation and balance of plants, turbine model testing and manufacturing, project management and field operations. Although all HPC operating units specialize in their respective markets, they are still under the management and corporate governance of the H-Group, the holding company. The case study focuses on the US-based operations, while perspectives from the German headquarters are also

incorporated. Interviews in both locations attempt to provide a richer and less bias perspective.

HPC's Competitive Strategy

As with any hydro power supplier, HPC competes in its market to provide customers with the best possible customized products and services at the lowest total cost. Considering how the competitive environments of the business have changed over the past decades, HPC has been lagging behind its operational capabilities and management styles. Traditionally, offers from customers would flow in. As a leader in sound technologies and 'engineered reliability' (a company slogan), business development was not a major challenge as it is today. In response to the North-American hydro demand and the expanding organizational know-how, the HPC-US developed a business strategy to leverage its potential across the full range of hydro power plant businesses to increase efficiency and productivity. A new competitive bidding strategy has been devised to move away from the traditional to an alliance-based approach (see figure 5.7). A new approach to business development was especially needed upon the joint venture the hydro-electric division of another global company. The expanding client base called for new ways to organize internal and external competencies such that they could be exploited more efficiently, as well as new ways to explore new sourcing to accommodate growing and specialized customer needs. The remaining of this section will outline the business strategy and its context in an attempt to identify the information and knowledge diversity that goes into the strategizing processes.

Change in Strategizing: Towards an Integrated Approach

The HPC competitive strategy was developed in an attempt to move away from traditional approaches of competitive bidding towards a new integrated approach to winning businesses and providing products and services. Traditionally, the approach to generating new business cases was based on a series of pricing activities where plant owners and their consultants set the criteria of supplier selection. The result of this approach has been a 'win-lose' or 'lose-lose' situation, according to a HPC-US project director. The 'old' way is outlined below:

Figure 5.4: Traditional business strategy (Source: Company document)

Here, it was primarily the customer (plant owner), who made most of the decisions in the supplier selection process by working with an independent consultant. This consultant then works with multiple suppliers to develop a pilot concept. In most cases, the consultant has most of the power in driving the selection process forward, where most often, according to the managing director at HPC-US, an average rather an the best concept would be developed, upon which negotiations would take place. This process was time consuming and dissatisfying to HPC, where additional costs to both sides would incur. This approach was perceived as 'win-lose' or 'lose-lose' situations for the customer and selected supplier because of the lack of cooperative environment. The third-party involvement was creating additional tension and conflict in interests between the parties. For example, the desire to be selected as the primary supplier would foster a 'win the bid' attitude rather than making a sincere effort to understand the customer's technical and commercial needs. The process of competitive strategizing would become one filled with frustration and ineffective way to present the core competencies to the customer. Moreover, a company presentation characterized the stages that managers typically go through while building a business case:

1. Euphoria
2. Disillusionment
3. Panic
4. Search for the Guilty
5. Punishment of the Innocent
6. Recognition of the Uninvolved

Figure 5.5: From control to drift - Phases of a strategizing process (Source: Company presentation)

Notably, these reflect the type of phases managers face in the process of strategizing, as they progress from a state of control to complete drift from the initial strategic intent (e.g. Ciborra 2000). Despite a step-by-step strategy, there was a lot of going back-and-forth in negotiations and 'gaming' with consultants, as well as among the team members at HPC. During the down-ward spiral, managers would go through frustrations and muddling through conflicting demands from customers, standard requirements and resource allocation. The new strategy was implemented to overcome the unnecessary hurdles and the psychological stir in the process and take the focus on synthesizing core competencies. Below is a list of the range of services covered under the new business strategy of HPC-US:

Modernization services	Maintenance & repair services	Development services (new plants and modernization)
• Plant condition assessment • Remaining life analysis • Up-rate evaluation • Operational optimization • Environmental considerations • Economics Analysis • Equipment supply • Outage planning and management • Financial concepts	• Equipment monitoring • Site inspections • Spare parts supply and management • Installation and commissioning	• Project identification • Feasibility studies • Power purchase agreements • Project financing

Figure 5.6: Scope of servicing and managerial work (Sources: Company document)

The new strategy is communicated as a 'philosophy', which involves a 'parallel cooperation with the customer from the very beginning' all the way through the implementation and maintenance phases. The crux of what make the strategy competitive lies more in its process than intention. Hence, a reconceptualization of the processes was hoped to lead to the desired outcome. This 'Alliance Approach' is a comprehensive multi-phase process from project initiation to the final bidding stage.

Alliance Approach: Design – Build Concept

Design
- Preliminary scoping & project or system evaluation, producing modernization reports and a business case
- *Evaluation of criteria and consultation with plant owner*
- Optimizing energy evaluation & scope development; final pricing and business case *Evaluation of criteria and consultation with plant owner*

Build
- Final design & implementation phase, equipment delivery
- Installation.

Figure 5.7: Steps of new business strategy (Sources: Company document)

The focus is to create a 'win-win' situation, whereby the customer and supplier form an alliance and work together towards the common goal, to provide the 'Lowest Total Owner Cost' (source: company document). This involves 'streamlining processes where both owner and supplier are focused on the same goal – Lowest Total Ownership Costs'. On the business strategy side, this is considered a 'unique concept' which provides customers with tailor-made optimized products and services from single components to complete plant management under one umbrella. What it means is that the separate phases of the bidding process become integrated into one which involves working cross-functionally in teams to make decisions, and more client interaction to evaluate criteria, review progress and adjust their approach.

The difference between the traditional and new approach is to improve the chances of supplier selection by moving the selection phase up the process and basing it on evaluation criteria set with the customer together. The director continues by arguing what the new strategy should be about:

- Integrating the owner's operating knowledge with the supplier product knowledge to produce the optimum project results or Lowest Total Ownership Costs
- Reducing surprises, overruns and conflict
- Trust, common goals and long-term focus
- Working with one supplier to reduce hand-offs and risks.

Figure 5.8: Intentions of the new business strategy (Source: Company document)

Here, apart from cost savings, the streamlined process handling steps (versus the series steps) allows an estimated time saving of approximately one year. The manner in which the time and cost savings are planned is quantified in detail through various graphical and numeric optimization analysis (incorporating risk variables). Decisions at every project

phase involve a large diversity of data, information and knowledge to be incorporated in the process. The activities that go into developing the bidding agreement are at the centre of the strategizing process. Specifically, a scorecard has been developed by which their performance is evaluated by the customer. This makes the final evaluation not based on price alone, but on delivered core competencies of the HPC team to customer's specific needs. These 'Evaluation Criteria' are set by the customer and supplier in an alliance agreement, which include:

1. **Technical capability**
   - Internal capabilities vs. outsourcing
   - If outsourcing, then does Alliance exist?
   - Engineering, Plant Assessments, Project Management, Environmental, etc.
2. **Experience**
   - Quantity and quality of experience
   - Knowledge on Plant Assessments, Turbines, Generators, Automation, Supply, etc
3. **Commercial approach**
   - Financial Strength (History, credit rating, etc.)
   - Proposed Pricing Mechanisms (Process, Innovation, Simplicity, Openness to share data, etc.)
   - Terms & Conditions
   - Bonus/Penalty Performance Measures (i.e. risk sharing)
   - Insurance
4. **Management approach**
   - Management Commitment
   - Dedicated Team
   - Identification of Executive sponsors
   - Demonstrated understanding of Design-Build Philosophy
   - Define customer/supplier interface process
5. **Quality/Environmental/ Safety**
   - On-site safety record, certifications, and so on
6. **Sample project approach**
   - based on sample project criteria: explain processes and approach for project[0].

Figure 5.9: Evaluation Criteria - HPC

These steps in the strategizing process indicate required forms of data, information, and knowledge. The philosophy behind an agreement with these criteria is to integrate competencies with the customer's common goal early on in the process. It allows the company to exploit on its technical and managerial capabilities while exploring new opportunities and risks directly with the customer (plant owner). The US-based headquarters has been successfully using the alliance approach with the view to deliberately enable internal processes and create a collaborative customer-supplier relationship. The leading person involved is the Executive Vice President (EVP) of Sales & Marketing of

HPC North America. Under him are the proposal manager and director who orchestrate the fit between customers and three further divisions: proposal engineering, estimating, and business development. Proposal engineering consists of mechanical, hydraulic, automation, operations, design, and support. The proposal manager works in conjunction with senior executives who manage regional business development and marketing.

Having portrayed the key processes, the next section sheds light into some of the IS elements as part of the organizational socio-technical II, which would create and enabling or disabling strategizing environment.

Information Infrastructure & Systems

HPC is a global leader in hydro power technology and was one of the first in its industry to pursue international projects and expand beyond its national borders. Surprisingly, it gave an unexpected picture in regards to the available IS/IT for management information and knowledge. Having described the integrated approach to business strategizing, one would expect that this is supported by an enabling II to allow information and knowledge sharing and exchange between managers across units and national borders. However, the organization-wide II and IS did not seem to have developed in line with strategizing ambitions. One reason is that while each OU may devise its own strategy, allocation of corporate resources still lay with German headquarters. It was striking to find three things[1] in the US and German OUs:

1.	Most of the project-specific data and information, and experience-based knowledge of project managers have not yet been converted to electronic formats to be stored in databases for future re-use. ITs and systems are available for the purposes of engineering data and information, not for management information.
2.	While corporate governance and power of authorization are centralized, the centralized IS platform is slow, out of date and lacks integration. This seems to inhibit knowledge workers to access, share and exchange management information. Each location has their own legacy systems in line it with local management styles and cultures, despite centralized command and control.
3.	The inconsistency between strategizing processes and available II/IS left experienced managers create their individualized subsystems to support decision-making. These subsystems consist of relevant data, information and knowledge from deliberate IS and emerging everyday sources.

Figure 5.10: Initial Findings – HPC

It was surprising to find that a successful organization with such massive amount of data, information and know-how about its products, management experience, alliances and

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[1] All data in this research refer to the year 2002-2004. Although the writing is in present tense, the information infrastructure may have changed in the meantime. Findings refer to the time the research was conducted only.

competitors did not have a digitalized IS, not to speak of an integrated knowledge platform. Most of the information on clients and projects had not yet been codified into systems and exist in manual format. Of course, on the operational level, there are standardized engineering software systems that the company uses in most locations, such as engineering and financial data, special engineering software to work with engineering drawings, project management and such. The majority of management information and specifically experience-based knowledge is in the heads of the managers. The engineering-centered IS are not surprising, considering that the company (meaning the H-Group) has been traditionally describing its core capability as being reliable engineering.

To that end, the majority of the content on projects and management information has been kept in filing cabinets, in hard copy manuals, paper archives etc. Even these were found to be dispersed across various locations/offices. The components of the electronic II are basic systems such as Intranet, the Internet, Email system and basic search engines providing general references. A big problem was the lack of electronic means to manage and oversee the ever growing volume of information, knowledge and experience in making new decisions on new project proposals. For those available IS, there is a lack of convergence of the media, IT and telecommunications technologies towards integrated ICTs. The only means one can get access to certain information is through the company phone book to find a specific person, emails, or personal networks. A lack of a common information platform has implications on many aspects of managerial work, leading to much inefficiencies and frustrations, especially at locations away from the German headquarters, where most of the business knowledge resides.

Furthermore, colleagues in the US OU complained about frequent misunderstandings and lack of communication with the German senior managers. Among them, very few thought this was due to the lack of ICTs and made reference to the gap in building consensus as a result of different ways of thinking. A frequent example, which was draw upon frequently, was the difficulties of the centralized command and control leadership but little means to collaborate when making joint decisions. This introduced a host of bureaucratic procedures, policies and regulations imposed by the German headquarters as a way to monitor OUs performance. These however, would come in the way of the natural strategizing process at the US OU. A major hurdle was the too frequent, tedious and inefficient way of the performance reporting system. During the period of the case study, there were no standardized systems to complete lengthy reports on projects. Writing

detailed essays and descriptions of project phases were mandatory and 'extremely time consuming' with 'little feedback' back to the OUs (according to the proposal manager.).

A lack of strategic IS, or MIS, to support managers on the strategic management affairs was stacking up the inefficiencies and putting a halt to the level of individual productivity. As opposed to US managers, managers at the German OU did not perceive the same problems as major, however. They were less willing to suggest a solution to the system inefficiencies and focused on working with what is available. As we shall see in the next chapter, this more 'accepting' attitude among German managers versus a more 'solution-oriented' attitude of US managers has much to do with different cultural assumptions, which affected the leadership and the corporate culture to some extent.

Addressing the IS Challenge

Furthermore, the lack of an integrated II has implications on organizational memory could be significant as the company expands and transforms its strategizing approaches. With limited systems or common knowledge base in place to hold on to the experience of managers, the knowledge remains in the heads of the people, specifically senior members. As a result, the company is keen to hold on to its senior managers for as long as possible in order to retain the experience and the knowledge that cannot be stored.

Until recent years, the approaches to organization information through systems and technologies were consistent with the traditional approach to business strategizing, i.e. focus on engineering and organic growth. However, the pressure to join the bandwagon of ICT adopters has been increasing because of several reasons, e.g. the exponentially growing volume of expertise upon the joint venture, the expanding client pool, more comprehensive customer demand, and growing competition from other suppliers. The company claims to be the provider of whole power plants and comprehensive consulting. With its new strategy to become a leading provider in world, there are tremendous implications on the knowledge pool, socio-technical context, and transparency. The increasing depth and complexity of the work processes and the growing client base have increasingly led to growing demand for corporate IS and evolving business strategies.
As an initial step towards a solution, the CEO called for the need to implement an Enterprise Resource Planning (ERP) system to streamline operations and business processes. Streamlining business processes was thought to help to synthesize the many

legacy systems and improve organizational strategizing capabilities. Notably, subsystems were still another layer of IS, other than legacy systems, which were not meant to be addressed by the introduction of the ERP system (perhaps because of the lack of attention to the existence of these systems). The goal with integrating systems was to create long-term benefits for the efficiency of business operations and effectiveness of business decisions. This would make the company to become more 'fit' and compete better. This is significant because as a family-owned company, most decisions and control are centralized.

Nevertheless, the company conducted a pilot study in the Asian OU. This, however, had to be disrupted due to incompatibility of the local culture with the systems requirements, according to the IT project director and HR director, Germany. According to the IT and HR directors, the reason that the pilot study failed in Asia was less a question of the ERP system itself, but rather one of management style of the local culture which had its own legacy system engrained in across all work processes. The ways in which information and knowledge were used was so different such that they could not adapt to the new system. According to the HR director, the next step after the disruption was to introduce new ways of management thinking through training before a second attempt to systems implementation could take place. In the meantime, the process of implementing various modules of the ERP system has been continued, with varying successes. Unfortunately, the period of the case study ended before this serious of attempts took place.

Having described the scope of the first case study, this is the point of departure to introduce the second case within an interesting contrasting context.

5.2.2 Private Client Services (PCS)

The case study took place at one of the PCS's US subsidiaries. PCS is the private client banking leg of a global financial services firm. It provides proprietary and third-party wealth management products and services to individuals and businesses. The business model is based on the firm's network of thousands of advisors around the world. PCS subsidiaries function in highly decentralized fashion, such that they are organized in bundles, or 'complexes', in each US State. Each complex has a number of offices depending on the size and population of each state. Each complex is a profit center and is run under a complex director. The performance of each office and advisor is highly

monitored and so is the performance of each complex by the headquarters. The rest of this section familiarizes the reader with context and scope of the inquiry.

Private Client Business Strategy

PCS operates in the US wealth management market which has been under continuous flux, specifically in the past 10 years. As a result of the fast changing fluctuations, financial advisory firms have changed their market strategies and structures accordingly. Specifically, in response to changing client demand and growing competition in the supply market, PCS, like many other firms, moved away from a traditional transaction-based approach towards an integrated approach. In other words, the wealth management business transformed from a mere transaction based brokerage towards a fee-based holistic advisory business. This transition meant an emphasis on re-structured products and aggressive sales and marketing services. Above all, the focus on customization of service offerings meant a shift in core capabilities from structured products to comprehensive advisory strategies to target all aspects of the clients' financial concerns. Implications on the role of advisors, their strategies and work structures were multifold. For example, whereas transaction-based tasks involved person-to-document mode of working (e.g. Hansen et al 1999) based on heavy use of sophisticated systems, the new role concentrated on the human capability as the driver of sales and business development. This means advisors are responsible to build consulting know-how and integrate entrepreneurial skills with financial analytical know-how.

A paradox was noted. While advisory compensation was structured around individual performance (i.e. pay-per-performance), the competitive environments left little room for individual advisors to survive. Furthermore, while the director of each office was encouraging team work and 'open-door policy', the complex director (who manages bundles of offices) silently encouraged single business developers to increase the chances to increase the number of households. Nevertheless, the point which is being made is to highlight the conflicting demands and uncertain environments of the strategizing work. Overall, the most successful advisors seemed to be those who managed to juggle two strategies at the same time: to expand their client portfolios through business development, while simultaneously service current clients' comprehensive and 'moody' needs.

At the particular location, most advisors had been with the firm long enough to reflect on the changes in the past decade and their work processes, changing management capabilities, and organizational memory and culture. A senior advisor reflected:

> Many years ago, the way this business was operating – the way the industry was operating – was you get a mutual fund and you sell it. A new MF [Mutual Fund] comes through to the unit, you have a sales meeting allocating who will sell how much ... and you go and sell it as 'the best product' out there. There were times when a unit wouldn't get the latest MF and salespeople where out of business. Now the business has taken a consultative role, where you are supposed to care about the client, understand them, understand the different products and find the right fit in a fair manner'

Above all, the model is based on expanding the firm's network through aggressive business expansion and development. The implications of supportive and enabling collaboration mechanisms are significant.

As already mentioned, revenue generation of PCS depends on developing new businesses and retaining old ones. Within this subsidiary, the researcher focused on the business development strategy of a particular team in relation to other teams, called the A-team. This team, one of the largest at the firm, works with individuals as well as institutions. Competitive bidding strategizing is what senior advisors do on daily basis to win clients. The business development strategy consists of investment strategy and client relationship management strategy. While there are experts dedicated to take care of the investment side, the business developer may also actively participate in designing investment strategies for clients, but not in all cases. As the front-end person, he/she has multiple integrated roles which encompass the following:

- Investment knowledge:
  - tactical and long-term asset allocation
  - Equity, Fixed Income, Alternative investments
  - knowledge about structured and proprietary products
- Knowledge about the HNWI (high net-worth individuals) market
- Ability to communicate this knowledge with the HNWI clients (who tend to be more difficult to manage than regular clients)
- Experience in portfolio management
- Commercial knowledge
- Creating new and maintaining old relationships
- Managing external supplies, i.e. money managers.

Figure 5.11: Knowledge work at PCS (Source: Company document)

Within a comprehensive IS platform, advisors coordinate relationships with a wide range of actors, such as:

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- Trust & Estate lawyers
- Tax accountants
- Investment/portfolio managers
- Property risk management brokers
- Life insurance brokers
- A range of bankers and lenders
- Mortgage brokers
- Private money managers
- Secretaries.

Figure 5.12: Areas of expertise - PCS (Source: Company document)

Each of these areas is a specialist body functioning in PCS to serve all advisory teams. Teams work in conjunction with them to provide customized solutions. Unlike the case of HPC, there is a sophisticated information infrastructure in place to serve the needs of each individual function and body of exerts.

Socio-Technical Context

While there is no one single approach to business development strategy, there is a uniform corporate II at the center of all strategies and operations of the firm. The comprehensive organizational II is primarily ICT-driven and based on proprietary IS to support the teams' strategies. This is not surprising, as the company's survival depends on speed to market response. Specifically, the centralized II is driven by the 'Global Infrastructure Solutions' and 'Global Securities Research and Economics Group'. The former delivers the firm's technology services including global operations, client services initiatives, business process outsourcing, technology infrastructures and applications development. Other organizations provide it with legal, regulatory and compliance guidance, management of employees, orchestrating the firm's communications activities to key audiences, and so on. At the same time, the corporate IS are the primary channel for employee surveillance and heavy monitoring of every work process. Every business transaction and communication to and from their computer stations is monitored.

Nevertheless, the centralized II and systems are at the center of organizational learning and memory. Through the comprehensive Intranet, advisors have access to unlimited data and information on external markets and internal organization, ranging from virtual learning

programs to platforms for investment strategies and client management systems. The Intranet, telecommunication and Email systems are the primary communication sources for corporate news, policies and market updates. There is also an employee call-center, which is used very often to answer employee's inquiries, for example how to track the status of a particular transaction, information on policies. Additionally, the firm promotes its proprietary management IS, where specialists from various areas (e.g. insurance, mutual finds, hedge funds), travel between regional offices to introduce the latest management software systems that may help advisors do their jobs better. The heavy reliance on a person-to-document approach to IS, however, means that the natural working structure leaves advisors to spend more time in their offices than person-to-person interacting. Specifically, this work structure leaves little incentive for new hires to learn from experienced advisors. All training, communication and learning take place through the firm's Intranet platform.

Furthermore, advisors are monitored and rewarded for businesses developed on an individual basis, regardless of whether they are part of a team. Hence, the reward system is encourages to some extent internal competition. At the same time, it is almost impossible for advisors to operate outside a team and still 'make the numbers' (meet the quarterly requirements of assets under management). Contrary to how the IS are designed around work structures, namely top-down, knowledge sharing and cooperation among advisors are seen as important because of the wide scope of tasks and activities. The success of each subsidiary depends on advisors working together in the same market. To encourage collaboration and team-work, the corporate culture of 'open-door policy' is enforced.

These contradictions as of working together and competing against each other at the same time, establishing new business on their own while expanding their business in teams, have been a source confusion and ongoing political tension at the firm. Nevertheless, the contradicting conditions provide interesting findings in how high producing senior managers (according to rate of business development) use IS to juggle deliberate demands with emergent pitfalls to survive the fierce and unpredictable competitive environments. Having described the relevant scope of the business strategy and the socio-technical context, some interesting observation surfaced:

1. Despite the comprehensive IT-driven II, there was limited use of the centralized information and knowledge resources by senior managers. Primary users of corporate IS were junior advisors. Senior manager applied corporate resources only where these were associated with compliance related issues, for example formal procedures with clients.

2. Despite an 'open-door' policy corporate culture, there was a surprisingly high resistance to knowledge sharing and transfer.

3. Experienced advisors were seen to use subsystems that hey had created on their own to organize, and manage key data, relevant information and knowledge. The manageable and flexible systems allowed them to work at the level of desired efficiency and speed. This was especially evident at the A-team.

Figure 5.13: Initial Findings - PCS

At first, it was surprising to find that, relatively, a very small fraction of what is available in the comprehensive II is actually used by advisors to support their strategizing processes. The majority of these business development support tools are not even known to most advisors. A reason for the limited use of centrally promoted IS was the sheer information overload. Advisors, even experienced ones, had found it difficult to find relevant information in the highly structured II. While the user interface of the Intranet, for example, provided many shortcuts to navigate the various links easily, still, it takes time to find and remember them.

Another contradiction was found in regards to the use of non-technological means as potential support in strategizing processes, such as social networking platforms. Surprisingly, there was limited use of centrally available social networks and non-mandatory socialization meetings and seminars. One might think that advisors would exploit the large and open organizational social network. In the contrary, senior advisors used a narrow and specialized aspect of the organizational social network. Moreover, it was found that senior advisors had found ways to exploit central IS resources and explore new sources of information that matched their particular ways of strategizing. Despite the wide array of corporate resources and comprehensive II, subsystems were the primary source of management IS. These resemble pools of files of data, information and knowledge cues, which are organized in a particular way, and updated on continuous basis. The next section summarizes initial findings from the two case studies.

5.3 OVERVIEW OF INITIAL FINDINGS

The context of the research has been the competitive business strategizing domains of HPC and PCS. The researcher explores the manners in which strategic actors leverage corporate information, knowledge and systems in decision making, and how they cope with exploiting corporate resources while coping with unexpected challenges. HPC and PCS were found to share to the following similar characteristics, which makes them suitable case studies:

Commonalities	HPC and PCS
• **Nature of Work** • **Scope of Business Strategies** • **Strategizing Processes**	▪ Both are knowledge-intensive organizations applying technical, commercial and management know-how ▪ Advanced technologies take a central role in product production and innovation ▪ Both companies underwent a transition in their business strategies for aggressive growth: Both moved away from product-centric business strategy to focus on integrated services in order to lead the way for differentiation and growth. HPC provide integrated services across the full range of the hydro business, and the PCS moved from transaction-based business to advisory services. ▪ The new business strategies are a result of corporate decision to move away from traditional approaches to new ways to compete more effectively ▪ Innovative marketing strategies and trust building initiatives take the central focus of managers/advisors ▪ Strategizing work concerns the local markets but depends on the global collaboration networks ▪ Strategizing activities involve cross-functional know-how, and cross-divisional communication e.g. marketing & sales, operations and product specialists ▪ Diverse set of data, information and knowledge from various sources about past, present and future developments of their markets, target clients, and competitors ▪ Building social networks and alliances with key individuals and suppliers (i.e. as part of global sourcing) inside and outside the firm ▪ Negotiation with directors as to who gets involved in the deal; collaborating with key people in the organization and compete for resources ▪ Knowledge workers are under heavy corporate surveillance and regular performance monitoring

Figure 5.14: Common characteristics of both case companies

The commonalities of the financial services and hydro power cases are that both are in knowledge-intensive and competitive markets. Managers need internal and external information about markets, clients, suppliers, networks as well as experience-based knowledge and business judgment in order to win deals. The common goal at both cases is to compete in their markets to be selected as the primary supplier and professional services

provider as part of a long-term business development strategy. Furthermore, while the research inquiry concerns activities *within* the business development divisions, these activities concern cross-functional, inter-organizational and cross-cultural communication, which will be accounted for to relevant degrees.

The main differences were in their corporate IIs and IS resources. The table 5.15 below outlines these differences:

Differences	HPC	PCS
• Management organizational context • Corporate II/IS	- Private, family-owned - German top management, Top-down /command and control leadership - Traditional business model: Slow organic expansion based on engineering reliability - Primary approach to IS: seems to be on bottom-up learning and social networking, i.e. traveling across OUs - Knowledge and experiences on projects and products reside within the minds of senior managers - Electronic repositories store engineering related data and information, e.g. drawings; no uniform/standardized IS - Limited ICTs for MIS	- Publicly owned - US-American top management centralized standards, decentralized leadership - Traditional business model: Moderate growth, transactions and structured product-based - Primary approach to IS: top-down, centralized person-to-document IS resources - Emphasis on deliberation and speed of information processing - Overabundant IS platforms, technologies and corporate support systems in terms of proprietary tools

Figure 5.15: Differences in their IS and infrastructures

Putting together comprehensive proposals requires the integration of experts' technical and business know-how from different areas. With the new philosophy of the alliance approach, HPC needs a common II platform so that engineers and managers together can exploit internal organizational resources as well as external suppliers and global network. However, HPC has a limited standardized information and knowledge platform to enable such strategizing approach to expand beyond its US OUs. The majority of corporate information and knowledge are dispersed across the global offices in the form of paper documents or in the minds of the senior managers (most of which were located in Germany). HPC has been relying on emergent approaches to business strategizing and so the evident IS strategy seems to be based on social networking. The lack of technological means in the strategizing context may have contributed to an increased level of social

interaction through traveling, working offshore in teams and frequent referral to the firm-wide social network.

In contrast, PCS has centralized and sophisticated IIs in place to allow advisors to use technological means to create, communicate and share information. As of the integrated servicing strategy, the most important part of the advisor's job is to have the tools to find prospective clients and building a growing customer base. Many advisors also contact potential clients by giving seminars or lectures or meet clients through business and social contacts. Work begins with a consultation with the client, from whom the advisor obtains information on the client's finances and financial goals. While it should be acknowledged that the study might not have captured the full range of knowledge work due to feasibility, the most common and relevant knowledge work processes that could be identified for the purposes of the research are outlined below:

HPC	PCS
Goal: Up-to-date information on market/customers demands, which involves exploiting experiences and technical-know how to innovate and meet customization requests, covering every aspect of the power plant business	Goal: Up-to-date financial data and information on markets; meeting client demands involves exploiting corporate IS resources and incorporate new changes; marketing & sales, forecasting, referral-based businesses, etc.
Core activities revolve around creating customized business cases for the final bid decision: • Preliminary scoping • System evaluation • Producing technical reports • Tailor *evaluation of criteria* and consult with plant owner: continuous communication between the proposal manager, organizational system (IT as well as the network of knowledge workers) and the client • Global sourcing • Ensure operations are in line with corporate rules and standards • Evaluation and feasibility study • Creating engineering plans and drawings to assess feasibility • Pricing negotiations • Finalize business case	Core activities include creating a series of customized portfolios for prospective clients: • Allocating responsibilities for specific stages of client communication • Within team collaboration on prospective clients' information, e.g. financial status as well as potential social link among them • Maintain business with established clients: Continuous knowledge gathering from various sources; e.g. on changing financial circumstances and strategies; • Competitors and markets analysis, forecasting and maneuvering strategies; assess and forecast financial needs; identify investment trends, etc • Consult with internal and external specialists • Preparing reports, letters, forms • Managing external money managers
Creation of the business case involves: • Technical know-how on the products • Project Experience • Commercial know-how • Management capabilities	Creation of trust and highly customized marketing material (i.e. before and after scenarios, forecasting, financial planning, etc) depend on:

• Quality/Environmental and safety know-how Emphasis on communicating with the customer on continuous basis.	• Specialty knowledge • Investing experience • Reputation of advisor Playing the role of a 'trusted advisor'.

Figure 5.16: Sample of knowledge work (Sources: Company materials and documents, publications, interviews, observation)

Some of the characteristics may be attributed to a number of factors such as different industries, competitive intensity and regulatory environments, national and corporate cultures, and management styles. A main difference, however, that is to our interest, is the establishment of the IIs, IS and the attitudes of managers towards the use thereof. Nevertheless, at both places, the nature of work is most of all entrepreneurial, where each team and manager is responsible for meeting corporate requirements and goals (i.e. sales targets). While the details of work processes differ, the overall nature of strategizing is similar in both cases; where this strategizing process requires the synthesis of technical, organizational and managerial know-how. What is striking is that each case seems to have almost contrasting design of II and strategies towards IS. However, the manners in which managers/advisors leveraged top-down and bottom-up IS in strategizing were similar in both cases on the individual levels. The next chapter will unfold these findings further and elaborate on possible implications on the organizational system as a whole.

CHAPTER SUMMARY

This chapter justified the choices made with regard to the case selection, and explained how the empirical materials were gathered. The two case companies were then introduced in terms of their business strategies and their II/IS. Initial findings were obtained from company documents, interviews and observation. The qualitative design of this research was neither very loose nor completely tight and pre-structured (Miles & Huberman 1984). This allowed the researcher, working in an interpretivist mode, to search for findings while keeping momentum on conceptual grounds. The last section brought together both cases and outlined relevant characteristics in terms of commonalities and differences, and knowledge work, as ingredients of strategizing.

The next chapter illustrates the main empirical findings in turn.

CHAPTER 6   EMPIRICAL FINDINGS

*This chapter revisits the theoretical framework
and outlines the findings for each case study. A summary of the findings
with an initial interpretation follows.*

6   INTRODUCTION

Before presenting the empirical data, this chapter revisits the theoretical framework to highlight the common components of analysis. Section 6.2 presents the findings in terms of the following:

- Approaches to business strategizing

- Determine an enabling or disabling socio-technical context

- Managerial IS in strategizing

- Organizational dynamics and challenges.

The overall purpose is to explore the dynamic interaction between socio-technical elements of IIs and the predominant forms of IS. Notably, the terms managers, advisors, human agents, and strategic actors will be used interchangeably, all referring to the decision-makers in the organization. In this context, two elements of unintended consequences will be

identified that seem to affect the dynamics between managerial IS and the organizational systems. These are cross-cultural conflict at HPC, and political tension at PCS. Finally, section 6.3 brings together the two cases to summarize the key findings. These will be interpreted with respect to relevant literature in chapter 7. The section also revisits the supporting theories that will supplement the hermeneutic interpretation in reaching explanation.

6.1   REVISITING THE FRAMEWORK

This section briefly revisits the key theoretical underpinnings of the IS strategizing framework, which were introduced in chapter 4. It also makes explicit the common components of analysis for both case studies.

This research resides in the organizational context, where strategic actors use IS while engaging in the process of competitive strategizing. Organizations and their socio-technical characteristics are viewed as information and knowledge bearing entities, in which humans and technologies dynamically interact, collaborate and compete with their respective business development strategizing (e.g. Ciborra 1997, 2000). This research adopts the view of strategizing as processes of decision-making, which drive or shape most subsequent actions (Coyne & Subramaniam 1996). Decision-making is viewed as a mixture of processes by which social actors and organizations assimilate and process information, interpret their environments and imitate/differentiate themselves from others (Wilson 2003). Drucker (1999), for example, points out some of the differences prevalent to different cultures as being management paradigms, length of time to come to decisions, the why of making a decision, why make a decision now, depth of analysis, the depth of factors encountered, analysis based on logic or interpretations, and so on.

In this context, IS/IT are often used as technological tools to make this process more effective (Newell et al 2003). At the same time, technological tools have led to the production of massive amounts of prescriptive material (ibid). To overcome some of the challenges in relation to the effective and efficient use of information and knowledge in decision-making processes, the IS literature reviewed in the context of this research suggests creating an enabling socio-technical context through IIs to provide the necessary platform to communicate, share and exchange information and knowledge (Galliers & Newell 2003; Alavi & Leidner 1999; Davenport & Prusak 1998).

As presented in chapter 3, there are different views on what constitutes IIs with varying emphasis on the social or technical elements. In this research, and according to the conceptual framework, infrastructures are seen as heterogeneous and socio-technical in nature (e.g. Hanseth & Monteiro 1997). The socio-technical attributes signify the need for flexibility (Avison et al 1995; Galliers & Newell 2003) in response to fast-changing (external) competitive environments and the need for ongoing (internal) organizational learning (OL) (e.g. March 1991; Senge 1992; Robey & Boudreau 1999). Here, OL and memory play an integral role in how information is used and decisions are made. Creating a socio-technical environment was argued to have an enabling role in key processes such as knowledge creation, accumulation, sharing, and transfer are supported (Galliers & Newell 2003).

Along these lines, the IS literature suggests that appropriate IS are significant to enable supportive IIs. Specifically, the strategic IS (SIS) literature suggests the use of deliberate or emergent IS strategies – as illustrated in the framework. One way to look at IS is to conceptualize them as socially constructed technical and social artefacts, which are used by strategic actors in knowledge work. The purpose of an IS strategy is to help improve organizational efficiency and flexibility, two outcomes that traditional organizational theory suggest as incompatible (Newell et al 2003). As part of an IS strategy, while some companies adhere mostly to the technical nature, such as databases and networks, others try to integrated the technology to management issues, such as decision support systems (DDS) and management information systems (MIS) (ibid). The codification and personalization strategies (Hansen et al 1999) were shown as one example in which information and knowledge may be organized and managed (ibid). The success of an IS strategy, once again, was argued to be dependent upon an enabling context which fosters the culture of cooperation (Avgerou 2002).

Nevertheless, this research is about identifying available IS and the manner in which these are used in strategizing by experienced actors. This is the point of departure to apply the IS strategizing framework in practice. As discussed in chapter 4, the framework is thought to be suitable because it encourages an interpretive mindset and gives the researcher the flexibility to openly explore the practice while staying focused on solid conceptual grounds. While the framework originated in the SIS field, it is used here to explore how various IS are leveraged in business strategizing by strategic actors. The framework argues that an enabling socio-technical II is important in facilitating a supportive environment. It further conceives IS strategies as part of a collaborative business strategy (Galliers & Newell 2003).

'Collaborative' refers to internal matters in conjunction with matters of external partnerships, customers, suppliers, etc.

The various IS refer to tools and techniques that are designed by the corporate IS to be top-down or bottom-up. These are illustrated in the framework as the conceptual dichotomies of exploitation and exploration IS strategies. Top-down, or deliberate approaches are those IS that are constructed to serve the exploitation of information. Bottom-up, or emergent IS are those that either serve the process of knowledge creation i.e. brain storming, or those that are created whilst knowledge workers explore new opportunities. Examples are of the emergent nature of IS are learning from 'below' through improvising, social networks and organisational learning.
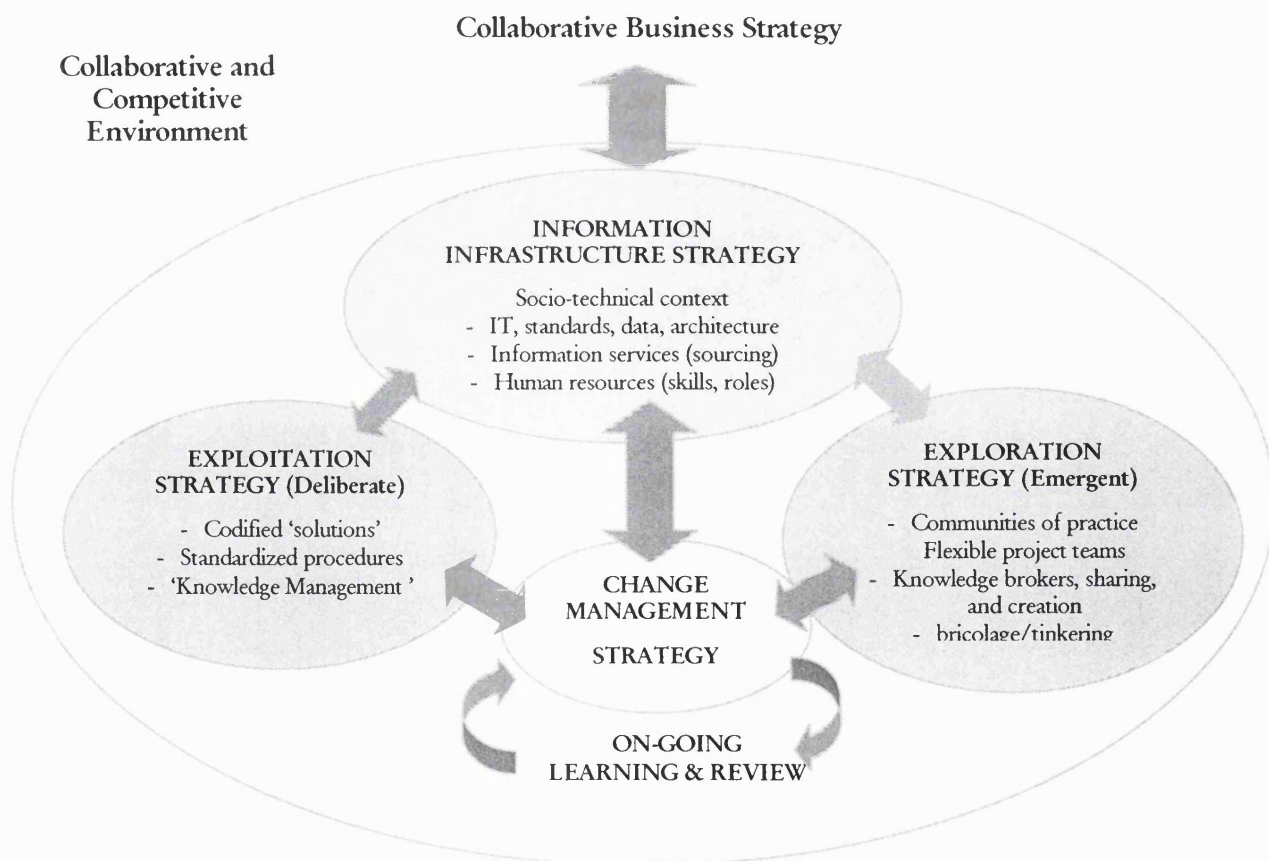
Figure 6.1: IS strategizing framework (Galliers & Newell 2003)

The change management strategy is related but they are discussed as they become relevant. For example, the 'change management' component is an inevitable and ongoing part of organizational and managerial reality, which will be treated as an inherent part of the discussion. The consideration of on-going learning and review will also be considered, as

relevant. As a further note, while the framework labels refer to IS as 'IS strategies' and 'Information Infrastructure strategies', this research does not take the strategic role of IS and II for granted. Instead, it takes an interpretive view on the forms of IS identified without assigning a 'strategic' attribute to IS.

For further clarity, the researcher uses the following table as a guide to distinguish between deliberate and emergent forms of IS. This makes explicit the nature of IS as document-to-person and person-to-person, which (cf. chapter 3) has been partly adopted from the work of Hansen et al. (1999). Whiles this thesis does not advocate KM per se, the distinction is seen as relevant to IS and as a way to categorize the data.

Exploitation-based IS *e.g. document-to-person interaction*	Exploration-based IS *e.g. person-to-person interaction*
Information is codified for reuse and to achieve economies of scale: ICTs and electronic document systems store and disseminate information & codifiable knowledge; connect people with corporate resources; train people through computer-based distance learning, etc. • corporate intranet • email, blackberry, telephone, video conferencing • data warehouse, repositories • decision support tools • groupware to support collaboration • social and virtual networks of knowledge workers • online learning • sources of internal expertise knowledge-based products/services.	Resources to channel individual experts; networks for linking people and facilitate sharing of tacit knowledge. The goal is to facilitate conversations and information exchange. • Strategy Training sessions • Face-to-face • Knowledge sharing teams • Periodical Meetings • Conferences • Social networks • Working in teams • Visiting foreign offices.

Figure 6.2: Exploitation and exploration-based IS. Partly adopted from Hansen et al (1999) to identify forms of IS

In each case, interviews were carried out mostly with senior managers, responsible for business development with respect to their competitive strategies. The common denominator for both cases is the competitive strategies at each respective firm. The cases are analyzed within their respective business strategies and the involvement of front-end managers/advisors. The table below highlights the key similarities of the two cases:

	HPC	PCS
Objective	Win more businesses/clients 'Become a one-stop supplier'	Win more clients, expand subsidiary's business platform 'We do it all'
Context: Transition from old to new business strategy	Design-Bid-Build approach → Alliance approach	Transaction-based business activities→ Fee-based & annuitized, Integrated advisory approach
Strategic Actors	Senior and operations managers: OU director, project proposal manager, Manufacturing manager, Global sourcing, utility suppliers, etc.	Senior advisors, subsidiary director, individual knowledge experts in Insurance, Pensions, Investment Managers, outside fund managers, etc.

Figure 6.3: Common base for case analysis

The main difference in the two case companies lay in their organizational IIs, where we want to see how human agents, as a part of the socio-technical environment, learned to leverage decision-relevant information and knowledge in their everyday knowledge work. IS components will be interpreted with respect to the characteristics of exploitation and exploration approaches - whether or not these are IS 'strategies' are not as relevant as the ways in which IS are used. The aim is neither to identify nor to assess specific technologies, systems, or decision models. Rather, IS encompass the whole notion of information and knowledge cues, processes or systems that are embedded in organizational structures, memory, and the minds and actions of strategic actors. The figure below gives a visual illustration of the framework applied in the context of the case studies:
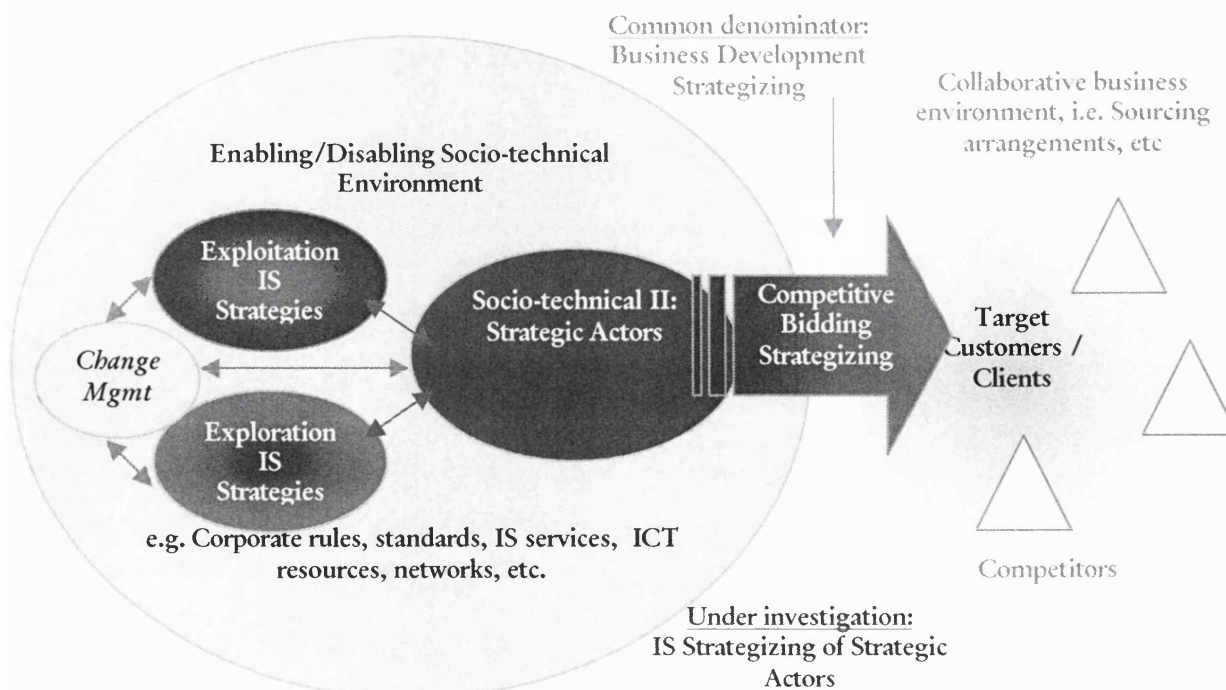
Figure 6.4: The IS strategizing framework in the research context

The area of exploration in this thesis is the dynamic interaction between the context, organizational IS, and strategic actors. The context is business strategizing process taking place within organizational IIs. The scope of strategizing concerns the level of management which engages in the customization and execution of strategies, and whose decision-making bears considerable responsibilities on the senior management level. Strategic actors refer to groups of individuals responsible for business development. The focus is on front-end managers in the marketing and sales divisions, respectively.

The above illustration above (6.4) shows human agents as part of organizational socio-technical, political and multi-cultural environment, where they have certain IS at their disposal in order to get the job done. Human agents make (conscious or unconscious) use of deliberate and/or emergent IS tools, techniques and resources. The arrow towards the outside shows the connection with the external environments, where multiple suppliers and vendors bid for the same target customer. This scenario is consistent with HPC and PCS. Findings from the two cases are hoped to serve as complementing material towards richer explanation of the inquiry. The illustration below shoes the three components and their dynamic interrelation:
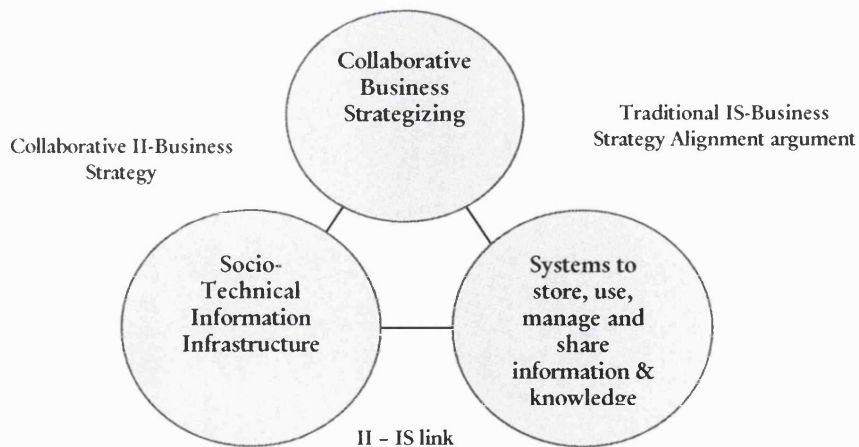
Figure 6.5: Interrelated Trio: Pointing out the dynamic interaction between collaborative business strategizing, organizational IIs, and IS

Exploring conceptual phenomena in the rather chaotic and subjective real world is not a simple task. As a result, it is sensible to consider relevant supporting theories and concepts to supplement the theoretical framework in order to draw a richer picture from the empirical findings. The supporting theories emerge during the investigation, rather than a deliberate consideration. For this reason it is sensible to present them at the end of this chapter. First, the main findings from HPC and PCS are presented.

6.2 MAIN FINDINGS

HPC is a private family-owned company in the hydro-power market with top-down German-dominated leadership. PCS is a public US private bank in the financial services sector with decentralized organizational structure. The context within which both cases are investigated is their recently implemented competitive strategy. The consideration of a two case instead of a single case study provides a wider window for analysis. At the same time, the researcher has to adjust the depth of empirical materials that are in parallel to one another

The discussion is structured in the way the interviews were conducted. Notably, not all quotes from the interviews and conversations could be incorporated into this chapter. Chapter 7 compensates for this limitation and captures wider range of findings into the interpretation process. Nevertheless, an effort was made to include those responses which were perceived as central to the research inquiry and as most important to the interviewees. Individuals who had an input are listed in the appendix and are marked in-text by the corresponding number, i.e. 'Interviewee 1'.

6.2.1. Case 1: HPC

As already mentioned, the IS strategizing framework was used to guide the data collection process. The questions start with the overall 'collaborative business strategizing' context. The researcher examined the perceptions of the interviewees towards some of the key concepts underpinning the research inquiry. An understanding of the nature of the strategy work itself was a necessary step towards identifying the forms of data, information and knowledge used. Since a conceptual comparison is not the main focus of this research, only a few relevant examples will be shown.

Once the research identified the nature of strategizing within the organization's II, the next step was to investigate the resources used in that process. Then she explored what kinds of IS were used as part of managing business information and knowledge in the competitive bidding process. The scope of strategizing at HPC concerns their newly implemented competitive strategy outlined in chapter 5. The questions are related to the activities within that scope. In this process, many other challenges and problems emerged, which helped explain the manner in which managers behaved with regards to IS. These were primarily in relation to cross-cultural challenges between the US and the German operating units (OUs).

The collection of various parts of the process helped to fill the gaps in areas that seemed cloudy and incomplete. As a result, it was difficult to put a structure around the empirical findings in this chapter because the sense-making process happened during a seemingly unstructured and reiterative process of exploring, interpreting, and writing. Interviewees include middle and senior managers in business development, engineering, manufacturing, HR, technology, global sourcing, marketing & sales, all of whom have substantial experience in the company.

6.2.1.1 Business Strategizing

According to Interviewees 3, 4, 7, 12, 20, 'strategy' was defined as follows in the US operating unit (US OU):

> I see strategy as a vision or purpose of an action ... action steps to get a result, a desire to support the actions. .... Defined actions toward a purpose .... Internal and external systems analysis and conceptual thinking.

A senior manager in strategic sourcing at the German operating unit (G-OU) stated (Interviewee 13):

> Strategy is knowledge about your industry and who your competitors are, the markets... overall, strategy to me would be studying all those, the global economy, who your opponents are and what your capabilities are, matching your company's capabilities and strength to how it would fit the market and competition, changing those things make you more competitive and more successful.

According to a senior manager in business development at the US OU (Interviewee 9):

> ... Find the knowledge that would help you get there and collectively get together to come up with a plan or strategy ... strategizing is actually collecting all that information and knowledge for your strategy. Not only in my own mind, but in a team environment working with expertise, once you identify your market and the competition, you start planning what to do to compete.

The Human Resources director at the US OU claimed that decision-making was perceived to be 90% deliberate with 'a splash' of 10% emergent; 'but 50-50 when using the 'exploring new ideas' criterion (Interviewee 7). The HR director at the G-OU was also asked the same question and responded (Interviewee 6):

> Strategy is understanding the issue and getting confirmation of the issue at hand - the decision making on the issue must be structured and must consider key elements: cost, time, quality, safety, customers' needs, and so on.

Interestingly, the definitions given by the HR directors did reflect the overall perception of the managers in the respective OUs. While the US HR director believed that the 'right' way of strategy was to think and behave in a deliberate manner, the HR director in Germany

was speaking more slowly and calculated about having to 'really understand the issues' at hand. The way the US HR director was speaking of the practice of strategy seemed 'straightforward', almost as if there was one best way to practicing strategy, which was already a part of the corporate culture: in order to be successful, managers had to follow a structured and deliberate strategy to 'meet clear set miles stones' by respective 'deadlines'. The different re-actions of the two directors to the same question were reflective of the underlying mindsets and worldviews by which managers work. A senior manager in business development reflected on his philosophy:

> I would say decisions are based on 20% gut feeling and 80% information ... Look a lot at historical data: purchase volume, type of purchase, and so on. You got to have the key information before you can get the picture of what's really going on.

The German HR director took some time to reflect on how he could verbalise this rather ambiguous concept. He stated:

> Most decisions are made by verbal communication here... We have many meetings, where we discuss long-term developments of our business and talk about broader aspects in the markets.

Notably, he naturally referred to 'most decisions' before mentioning the word 'strategy', implying that he views strategy really as 'strategizing', and an action-oriented phenomenon. He also referred to 'verbal communication' as an evident part of decision-making, which takes place in 'meetings', for the most part. Another reference was made on the 'long-term development' of the business, which indicates the kind of mindset around various aspects of business strategies. This becomes significant in relation to decision-making with the US colleagues.

Thus far, the role of IS in strategizing and decision-making was not mentioned. The researcher attempted to bring out the key words 'information systems' and 'systems' to see how the interviewees would react. At both OUs, IS were immediately perceived as ITs in relation to engineering, not as management information systems (MIS). Interviewees spoke of ITs and ICTs as important for all the activities concerning technical data, engineering drawings and technological innovation. A manager in manufacturing stated (Interviewee 17):

> We have procedures and processes that support our business strategy, however, we are still working with an out of date business system, that does not allow for real time cost or time data. We have spent a lot of effort in engineering software, scheduling software, etc. but nothing yet that has addressed the strategizing side of the business.

Generally, many of the interviewees were not certain as to how ICT systems would serve them to manage business information without problems inherent to 'packaged solutions'. A

director of field operations who oversees large scale projects across various regions said (Interviewee 17):

> Our strategy is to be the major player in new hydro projects. The IT landscape is a basic prerequisite to reach that goal. ... IT tools support communication, decision-making and controlling ... However, perhaps not problem-free. I do not believe that face-to-face meetings can totally be replaced. We are using IT tools to collect data in order to be able to make better strategic decisions. We still need human knowledge to combine the data collected.

The sentiments in the above statement were confirmed by the majority of managers. Notably, the lack of electronically available information, and most of all, integration thereof, did not leave much other option than to communicate in person or on location to access the widely dispersed information and knowledge. Basically, much of the content on the corporate intranet and reference documents is inappropriate to support business strategies. One thing they have struggled with is to access key information efficiently such that managers do not have to reinvent the wheel for every new project. There is no platform on which lessons learned may be captured and distributed, other than filing cabinets containing manual files of past projects.

For this reason, it was widely believed that a culture of sharing must grow, naturally. According the proposal manager (Interviewee 12):

> We do a good job collecting them for single projects but we do not share well with the rest of the organization.

As a result, senior managers spend a lot of time travelling between subsidiaries, and new managers are sent to headquarters for at least one year at the beginning of their careers to become acquainted with the ways the company does business. This is meant to help managers to overcome cultural issues (between US and German headquarters) and work closely with senior managers in Germany, learning from their experience on past projects and their rich social networks. As one German senior manager acknowledged (Interviewee 2):

> I have been with the company for 30 years and I know a lot of the fellows and key individuals and a lot of the projects over the years. So typically I can find somebody who has some knowledge of a given project or customer, but that's just in my head.

As a result, those senior mangers interviewed did not perceive IS to be of great use to them and did not insist on introducing MIS. The director of field operations in the US-OU saw this kind of socially-embedded and unstructured knowledge as problematic when it comes to exercising strategy in their own more deliberate way, which in turn affects the desired performance of the OU (Interviewee 17):

> I think it's important to share more tacit knowledge with the strategy folks... This allows for more knowledgeable discussion on feasibility. It also allows top management to get early buy-in to our proposed strategies, in lieu of jamming it down an organization's throat...

While executive managers at the US OU have negotiable influence over business strategies in the North-American markets, the German headquarters still have to approve their strategies, their intentions, and execution strategies. Similarly, the authority over long-term decisions and processes at the US OU are subject to the approval by the German dominated top management team. Sometimes this gets in the way of the US managers in pursuing what they see as most appropriate strategy. Managers are conscious of different strategizing approaches and ways of thinking. According to a sourcing manager in the US OU (Interviewee 16):

> I sometimes wonder why we don't approach other markets with more rigor. Plant maintenance programs, non-hydro manufacturing and Engineering, etc.... our strategy in North America comes from top-down; there may be a small percentage of folks other than the German top management that have a direct influence in the direction of our strategy.

Managers in the US agree that more knowledge sharing is necessary in order for the top management to get a clearer picture of the actual local markets in North America. To this end, the company was said to have monthly and quarterly management meetings, where the strategic direction and challenges are discussed. There are also semi-annual executive board meetings, and various other meetings called on an ad hoc basis. However, managers in the US OU complain that most meetings are not as productive as they could be due to a lack of consensus between the German headquarters and the US managers. While there are knowledge exchange-meetings, 'the problem is that a lot of the initiatives from meetings are not pursued' (Interviewee 7). Furthermore, detailed quarterly performance reports to headquarters are mandatory, but these are not used to constructive ends either. The idea is that these are reviewed and key issues incorporated in the next meeting's agenda. However, OUs do not receive the expected feedback: 'nobody knows what happens to all the reports – we do not get to seem again once they are in' (Interviewee 12). Whether it is an II problem, clashes of mindsets, or management thinking, was not clear. Most often, all of the above were blamed for the lack of synergy between the US and German teams. We explore these areas further below.

6.2.1.2 Socio-technical Elements of HPC

Infrastructures are seen as means to provide structure, improve communication in decision-making and the overall quality of the projects. The infrastructure is managed by

local IT departments that are centrally controlled by HPC. The current IIs consist of standard applications which are stored and maintained centrally, such as Outlook-based communication systems, engineering drawing software tools and references. The Intranet provides general information, technical standards and procedures; also forms, templates, policies, but they are scattered, not updated regularly and not transparent. Just in the past two years, the company implemented central databases, where managers can file all their documents in a central location. These applications include a cost database, project data management, and engineering handbook (with standard forms, check lists, uniform project and cost reporting, manufacturing, estimating, etc.). The main database is the global engineering drawing and project management database PDM, ProCS, CFD. The information in these databases is shared globally (Interviewee 23).

The apparent problem lies in the lack of an electronic version of business information, as well as a lack of integration. About 85% of organizational data is stored in an unstructured format. Unstructured data complicates transparency, access, identification, management and control (Interviewees 6, 13). Thus, the II was not seen as ready to support the business and decision-making processes in the process of business growth. According to one manager (Interviewee 18):

> Providing hydro power is a complex process. Different components and systems may be designed, manufactured, delivered, installed and commissioned by multinational HPC operating units. In order to be able to do this cost effectively, having a supportive corporate information infrastructure is a must... which we currently don't have.

A general need for an integrated II was well recognized organization-wide (Interviewee 17):

> International projects can only be handled efficiently by using uniform tools ... Integrating components to a plant needs systems integration ... an IT infrastructure.

Many managers advocated the idea of integrated platforms to facilitate information transfer in strategizing processes (Interviewee 18):

> ... [IS are] very important, because information is key; time is a key element [and] these kind of systems [ERP or KMS] collapse time. Instead of 1000 people gathering information in their little red book and ask questions, it's all done electronically and digitally, so you get - if the systems are designed well - information that you need to help make decisions, to help validate strategies, to help evaluate parts of the strategy quickly. So it's absolutely an essential part.

The problem on the management side was believed to be a lack of overall information integration and transparency (Interviewee 8). It seemed that for every business proposal, they had to reinvent the wheel. Managers would lose a lot of time trying to access the dispersed information. According to a project manager (Interviewee 20):

The current IT systems that contain information on customer status are slow and not user-friendly. They are not well designed. So we utilize and assemble multiple inputs to track projects and [this] puts us sometimes several months behind.

IT systems are used in engineering, cost accounting and marketing to support quality, cost, and delivery. Gathering information and knowledge regarding commercial aspects, however, has been on a person-to-person basis (Interviewee 19):

We currently don't have a management system.... All IT systems are for our engineering folks. Knowledge is in people's heads. It's gathered through shared conversations, always way after the fact, however. Frankly, I'd be interested to know how a management system can help me make better decisions.

The overall IS seems to face many inefficiency problems organization-wide, which make the jobs of managers somewhat more difficult. For example, a major problem lies in the discrepancies among current business systems, where the individual systems 'do not line up' (Interviewee 22), e.g. discrepancies between scheduling and sourcing systems. This makes it frustrating, when manager try to gather together information for particular decisions (Interviewee 13):

Many business systems can't talk to each other. Our decisions depend on the infrastructure ... for example sourcing issues and global prioritization is very difficult in our organization, because we can't quickly get the global picture ... there are many conflicts among the current systems. So what do you do ... you try to make the best of it.

It seems that before the systems can be integrated, first, there need to be the right systems in place. A manager from strategic sourcing commented (Interviewee 15):

From a global purchasing standpoint, the exploration strategy is fairly informal, and we have strategic purchasing teams that have participants from all the HPC OUs. So we are working to generate an IT-structure to give us purchasing volumes and forecast purchasing needs – once we get the forecasting volume, then I see it as being a formalized structure, to exploit that knowledge, to leverage that. You always have that exploration [possibility], where you define the supplier the other person doesn't know about. You can't separate those.

The inefficiencies are often related to time and productivity. Many senior managers expressed their frustration by referring to the reporting and performance monitoring system as an example of inefficient IS in getting anything management related done (Interviewee 3):

Producing management reports is very time consuming. We spend days in pulling together data from different places and put them on Excel sheets to produce reports. We need to streamline the process of gathering information and generating reports: a database to pull all the data together from various systems and automating these reports.

Generally, the process of accessing the right information and pulling them from multiple sources is time-consuming, inefficient and bureaucratic (Interviewees 8, 12, 16, 17, 22).

According to the German sourcing manager, at one point he was unable to prepare a company presentation based on the latest information, because several corporate reports were 'lagging several months behind' (Interviewee 15). For this reason, according to the strategic sourcing manager, relying on the top-down corporate system alone will not be sufficient to get their jobs done.

The lack of streamlined business processes and increasingly disintegrated knowledge sharing networks became more evident during the phases of the strategy process. When constructing a bidding agreement, team member from various departments come together and integrate their expertise. In these cases, the strategizing starts with thinking around a problem situation and suggesting solutions based on knowledge. These cases typically involve the matching between the customer's needs, the company's capabilities, and requirements of external regulatory bodies.

Hence, the various forms of information and knowledge needed to prepare customized proposals came from the customers themselves and from collaborations with other managers in the same or a different OU (Interviewee 12):

> We make decisions based on the input from a series of managers and division, rather than solely based on information generated from ERP. I believe it's much more than an IT system. Decisions need understanding. Systems can help, but that's all about it.

One senior sales manager indicated the central importance of experience and knowledge that go into work processes:

> We provide highly customized products and services. We are not in the commodity business, where your margin is pretty much fixed. In the custom-built market, the fit of your product with the customer's specification is paramount.

All the managers interviewed expressed the need for some kind of information profiling, and reorganization across departments, so they could locate documents more easily. The problem would not be solved automatically by implementing an IT system, however. Interviewee 20 stated:

> The problem is generating the information to support the database – currently, we don't have a totally integrated system, so a lot of the information is generated manually and the forecast and so forth, and so it's a lot of work generating those forecasts...

Most of this dispersed information is on past projects, contacts, and experiences. Nevertheless (Interviewee 23):

> ... The goal of having the whole company work with identical processes using identical tools is extremely difficult to realize.

Overall, managers in different divisions expressed the need for a unified information platform and more open knowledge sharing. At the senior management level, the skepticism was higher because their work involved more knowledge and experience, which most of them already had, having been with the company for a long time.

The director of sourcing and marketing acknowledged that current IS are not adequate to cope with the diversity of the knowledge work and the demands of the new business strategy:

> [We] are currently investing in upgrading the infrastructure. Our goal is to create a central database/data management system controlling the access and handling of decentralized stored information.

What was most desired among the project managers was a system that was flexible and quick to integrate market and organizational changes. The lack of such system was hindering the organization to compete in its market.

The lack of integrated IS along with the wide dispersion of management information and know-how called for the development of person-to-person information transfer and exchange. As mentioned, because of the family-owned corporate structure, most know-how and resources are centralized at the corporate headquarters in Germany. For this reason, in order to access information and knowledge resources, managers in the US OU have to keep close ties with German managers.

Having said this, conversations with executive managers in the US OU revealed a far more pressing concern than problems of IS. These were in relation to building consensus with German managers in joint decisions and strategizing processes. The repeated comment 'why don't they understand us' (Interviewees 1, 2 and 12) reflected a series of problems stemming from different ways of thinking and interpreting strategic issues. This is a significant issue when the primary opportunity to come to consensus is in meetings. Interviewee 10 stated:

> Whether it's information systems, management, or culture, everything seems to take a little longer. For example there are too many meetings that we go to, but most are not as effective... most end up in frustration instead of solving a problem. We think it is a consensus problem. Everybody has a different view on one thing and a different way they want to have problems solved. Perhaps it's all of it [information systems, management and culture].

Interviewee 9 commented on working with members across cultures and functions.

> We tend to be more informal than the Germans are [in sharing expertise]. The Germans perhaps are more for the grandiose database tools and generating info for

information's sake. I think you need a limit, otherwise it's diminishing returns and you can't afford the cost of the system either. Getting information is easier here; it's more top-down than in Germany. It's [leveraging information and knowledge] a problem yes, over there. I suspect operating units in the US are more efficient than in Germany - because of less formality and systems.

The different thinking was equally noticed at the Germany OU. According to a German manager (Interviewee 12):

Sometimes the US quickly sees through the information and wants to take action quickly. But Germans remain in philosophical debates. Sometimes facts don't seem to matter if the boss wants something else.

Differences in thinking and approaching strategies exist, and both OUs know this. For this reason, it was mentioned that every OU has built their own knowledge base over the years (Interviewee 6, 12). Given the tight management control from corporate headquarters, but little guidance as to how to align global strategies with local cultures, each OU has been trying to cope with conflicting management demands and created systems that allowed them to do this coping. Hence, these systems are very individualized. According to interviewee 12, while there is little consistency in how decisions are made in the two OUs, the US OU has to find a way to follow the demands that come from the top. Overtime, this has led to somewhat disintegrated mindsets among mangers, and accordingly, to an increasingly disintegrated knowledge base. Managers at the US OU have developed their own knowledge platforms to enable them juggle the rules and policies coming from the top while keeping their local competitiveness in terms of innovating and exploring new areas for growth.

6.2.1.3 Subsystems: Managerial Advantage & Organizational Challenge

It was pointed out in the discussion that in response to the frustrations, over time, individual managers (particularly at the US OU) had developed their own information and knowledge systems, which are supportive of their particular ways of decision-making. The particular ways, for example, depend on the evaluation criteria that were outlined in chapter 5. These criteria set the parameters by which managers measure their performance directly with the client. This requires the flexibility to exploit corporate resources and explore new ways to meeting these criteria. All of these lead to an ever 'growing knowledge management base' (Interviewee 8), which need to be managed continuously and individually. These individually created and managed

systems are referred to as subsystems. The need for such systems was elaborated above (Interviewee 7):

> ... people build personal files.... [they] have created too many Excel spread sheets – manual ones too .... Almost everything that has to do with information systems requires personal value-added effort.

The format of these subsystems is very specific to each manager, ranging from simple files, Word documents and Excel sheets to more sophisticated applications adopted externally. The purpose has been to create a transparent and flexible platform which contains relevant data, information and knowledge cues. These are gathered and stored during the process of various communication and business dealings. Hence, the nature of these systems is procedural and ongoing. Most importantly, according to Interviewees 3, 8, 9 and 20 managers are able to incorporate changing requirements into their personal subsystems, which is critical in re-evaluating the status quo for future decisions along the strategizing process. This, specifically, is true considering the nature of the knowledge-based work that goes into fulfilling the evaluation criteria.

At this point, let us consider the theoretical framework for a moment. Upon the identification of subsystems in the case study, and the reasons for which these are used, the importance of an integrated view on the framework's components become clear. While deliberate and emergent IS are important, it is the relevant combination of these in the particular strategizing contexts which brings value. Here, the use of subsystems reflects how managers leverage organizational resources and simultaneously incorporate new learnings from everyday coping with systems, technical and social challenges.

Nevertheless, while managers have been able to stay competitive, in terms of the organization as a whole, the collection of organically grown heterogeneous subsystems had led to further complications in creating integration and an organization-wide IS (Interviewee 7).

Furthermore, the individual subsystems contain a lot of project expertise, experience and knowledge that are invaluable to other team members for future projects. Several aspects make the subsystems difficult on the organizational level, i.e. on an inter-unit level: first, the structure and content of the systems are very specific to the managers, as these are more or less their own creation. They rarely retain their value when they are transferred or shared with other teams or units. Secondly, and most specifically, there has been an increasingly 'them and us' attitude in cross-cultural communication, which may be related to an

increasing use of manager-based IS rather than organization-based IS (Interviewees 7, 12).

According to Interviewee 4:

> There is lot of tacit experience in the organization at a very high level. It is difficult to communicate that tacit experience, so people hold back and don't share as much as they should. This creates conflict ... and misunderstanding.

In response to the question how much subsystems may have to do with the lack of sharing, the HR director in Germany said (Interviewee 9):

> I think it [subsystems] has a lot do to with it [resistance to share]. You need your knowledge systems to work efficiently. It becomes part of you.... You can share it with others, but they might not understand your way of thinking about strategic issues. As I said before, the tacit knowledge makes it difficult to share.

He continued:

> These manager's systems are good if they help, but perhaps not very good when we try to operate from integrated systems... later in the future.

Furthermore, while it was not said directly, is can be implied that due to the lack of integrated management information systems, it has been to HPC's best interest to keep senior managers on board (Interviewee 6):

> Each operating unit has its own [knowledge base] because they do things differently. Having said that, the company likes to keep senior managers. They form a major part of what this company is all about...

After all, there are no systems to capture their know-how. Senior manager are perhaps the primary source of organizational memory.

6.2.1.4 Towards Integrated Systems

The lack of an integrated knowledge and IS strategy was creating major opportunity cost. The CEO of HPC in Germany decided to go ahead with ERP systems as a systematic approach to mobilize, utilize and exchange the information dispersed throughout the global organization. ERP systems were meant to align strategies with operational processes, and enhance productivity and insight throughout the organization. This integration would help to move away from a product-based approach towards a top-down, customer-oriented strategy in order to prospect and bid more competitively in the markets.

Implementation of ERP systems was seen as a radical change with mixed views on how it might improve the outcome of competitive bidding. The IT project leader said:

> Because of the incremental efficiency, people think it's not worth the cost and the energy to make the system work ... At the same time, the generic use of an ERP system is very well understood ... providing information that managers need to help make business decisions or helping one manager communicate to another manager, so that the team can function better in an orchestrated manner; so these systems are key to business success.

It was not disputed that in the long-run, the subsystems and information processes needed to be integrated. However, whether this would dramatically impact organizational performance as a whole was questionable. Much concern was around the lengthy, costly and problematic implementation process, and whether it would be worth the investment in time, effort and money (Interviewees 9, 13, 14, 15, 16, 20, 21). This scepticism had to do with the high risk of IT projects associated with large budgets and late delivery. Research tells us that the reasons why IT projects fail are complex and nuanced (Myers 1994; Avgerou 2002; Bostrom & Heinen 1977). Regardless, 'at the end of the day it's the IT director who's held accountable' (Interviewee 23).

According to the IT project manager, there were a range of concerns that needed to be addressed at HPC, from the most basic to more sophisticated, for example:

- To raise awareness of the value of an integrated IS strategy
- The need to share knowledge systems and not withholding
- Need for profiling unstructured information
- Reorganizing strategic information across departments
- Defining best practices and make them available to top managers
- Specification for implementing an Intranet to publish information such as forms, templates and policies that are currently scattered
- Creating document naming conventions
- Use meta data in documents (keywords)
- Appropriate technology to encourage users to store data in appropriate places
- Need of high level of cultural change: requires senior management buy-in.

According to the IT Director, the improvements would include a module that was able to produce comprehensive reports, based on information generated from the ERP, a major concern of the US managers. At the same time, he argued how difficult that process was because, over the past decades, each subsidiary in each country has developed its own legacy systems and subsystems, in line with local cultures and working methods. Hence, massive amounts of information were held in heterogeneous formats around the world.

Furthermore, once the systems were integrated, there was the concern about flexibility (Interviewee 17):

> ... the IT infrastructure must be flexible and continue to evolve in order to provide real time information about changes in our business, such as spending, performance data and inventories.

For decision makers, information generated and managed by ERP is to provide useful references, such as inventory level, input and output.

Generally, it was found that the way in which managers perceived the usefulness of IT - ERP in particular - in relation to their decision making activities was largely influenced by the specific strategy. Interviewees acknowledged that there was a wealth of knowledge embedded in people in the various divisions, and an integration of social and IT-based systems was paramount in the short-term strategies as well as long-term, when current managers leave the company. Most managers in Sales, Marking and Business Development, specifically in the German unit, were skeptical of the promises of the ERP system (Interviewee 2):

> We need to adopt and integrate a business plan and make it work. I understand SAP will happen in the next 5 years, however, I heard this same thing 10 years ago.

At the same time, the skepticism among German managers about IT-based management systems was due to the widely dispersed propaganda associated with IT consultants who market ICT 'solutions' to 'fix' management problems. This increased the adverse reaction towards top-down systems such as ERP systems. One manager with substantial experience in the company was especially critical (Interviewee 21):

> Show me one that works and I will use it. New systems are rigid and time consuming [to learn]. The reality is that the systems are only as good as the people using them. Besides, given the infrastructure, people here have to adjust their [management] thinking first.

The benefits of integrating management information, according to a business development director, are in theory great, but in practice very difficult and problematic (Interviewee 2). This, among other reasons, was because most managers did not stay in their offices long. Most of their work was carried out in meeting rooms, traveling between OUs, to green fields, power plants, and even playing golf with customers. The priority of managers in business development was to get to know their customers, their needs and concerns. The best way to achieve that was to gather first hand knowledge in person (Interviewee 10):

> ICT systems could be useful, but not for me. I spend most of my time talking to people I like. To me, having a nice dinner at the house of my customer brings me [more] value than any system.

Later in the interviews it became evident that the comments on the role IT, such as ERP, were more based on their perceptions about new systems, rather than the actual potential of that IT. This perception, according to a senior manager, is a cultural and generational issue (Interviewee 8):

I think with IT, it's more generational. There is the generation of engineers in one culture that likes paper .... And then the younger generation uses the file systems, your age group, and your familiarity with using these newer tools, allows sharing more easily ... Some cultures are more protective, and things are kept in a drawer, in the filing cabinet, and not shared. Yes, there is a culture difference. That can change.... As generations change, the cultural experiences of one generation might not be the same as the [next]. The younger generation is more active, their culture is different with respect to information sharing. In using the latest ... technology, it's all pretty new stuff, and the people doing that, whether they are doing it in China, or Germany, or in the US, they're all pretty much the same. They have the leading edge of using that because they acquired this knowledge and this technology from a new techno arena that may have started in a year, they're all the same they have the culture of IT.

Nevertheless, with the implementation of the ERP taking place, change was under way. As of the IT manager:

I think we're going towards a highly consistent approach - aligned with business and strategy - for the next let's say 5 years - which is necessary to establish a more profitable business. After the first couple of projects are done and people are trained, we may be able to react faster to unplanned business.

While the ERP is planned to help operation related decisions, senior managers in business development may not benefit from it as much as they like to, because much of what they need is in the head of the people and under constant change. While exploiting IS is essential within the organization, ICTs do not automatically improve social relationships that are vital in winning the trust of new customers. Similarly, even though ERP can be a useful tool to generate best practices, much of the ongoing learning happens during the interaction between organizational members. In other words, while the management of divisional information can be centralized through IS, knowledge sharing across divisions can only be enabled through the establishment of social network (Nahapiet & Ghoshal 1998).

6.2.1.5 Social Networking

The research investigated further in how the social system is leveraged by managers during various phases of a business case. It was found that the majority of managers in both locations preferred to use telephone, video conferencing or face to face meetings (Interviewees 2, 3, 5, 6, 7, 8, 9, 10, 12, 13, 20). E.g. as of Interviewee 8:

Video conferencing, or face-to-face meetings... for me the best methods.

This is because from experience, they were aware of potential misinterpretations when using virtual means of communication. Specifically, the use of web-based applications and Emails were perceived as 'inefficient' and 'inaccurate' (Interviewees 1,2,11,12,14). According to a senior manager in business development (Interviewee 9):

> Email is terrible ... [it] slows down the progress. Email is too easy. It's good for deciding on facts and data, but that's all. Email makes us 80% less efficient.

Specifically, the use of Email was more frequent within the US OU than with managers in other OUs, i.e. Germany, China or South America. According to a senior manager in business development (Interviewee 8), the chance for miscommunication on either part is almost for certain when communicating with other cultures. According to Interviewee 8, it is difficult to read between the lines in an Email communication:

> When a colleague tells me what he thinks about something we are trying to decide on, then I don't know whether he really understood what I meant ... also, do I understand what he means?

The above section reflected on examples to show that managers are aware of continuous miscommunication and misinterpretations, whether it is through the use of ICTs or socialization. Above all, the determinant factor in the competitive bidding process was said to be the element of trust and openness. An interviewee reflected on what he thought was the most effective way to create these (Interviewee 8):

> You can't network blindly, you have to have some common experience with the people you are networking with. You got to develop trust so you can communicate efficiently. Do something together in teams to build this level of trust and understanding... After that, it's much easier to have a very effective relationship ... so then you can use Email, but it's only really effective if you are working with some basis of trust.

A senior director said (Interviewee 3):

> If the subject matter is well known, you can communicate using technology, but if it's a little less concrete, then you need more exposure, more mixing, more uniform culture, generating [mutual] understanding. Yes, I'm talking about strategy ... soft things, not hard things.

The premise behind social networking was elaborated in more detail (Interviewee 8):

> It's important to really know the person [customer or colleague]. If you feel comfortable with that person, if you feel comfortable in opening yourself, then we can share information effectively. I had to learn to trust this guy [a customer]; I had to learn about his background and his way of thinking and so forth, so I could interpret his words in communicating, because it's not words that are important - it's the meaning behind the words. So you need a way to do that, you have to share meaning.

He was asked to reflect on some of his experiences on social networking with HPC. The following example highlights several aspects: creating an enabling context, an enabling organizational memory, and the role of integrated management thinking:

> One example in this area, I lived in Germany for five years. One of my jobs there was to integrate technologies that were developed in Brazil, Japan, and the US. It's an amazing thing because you are not trying to integrate technologies, but rather how people use these technologies, so you have to get the users to some kind of level of

experience, some kind of level of trust. So what we ended up doing, which was very effective, was that we brought in users from each of the locations together and formed a team to create an integrated technology, and they are all members of the creation of these technologies and of the product that we created. That team worked together, partied together, had common experiences together. Over a period of 6 months to 2 years, now ten years later, that team functions perfectly – they've been together working in a specific group project for a while, each of the group members reaches out to talk with the other group members. If they have a new project, they communicate extremely effectively; they come from a basis of shared experiences.

The interviewee continued talking about social networking with regard to customer relationships:

It could be just a dinner. If you are working on a more in-depth project, you need that shared basis of experience to have effective communication. So all my networking members that I use, we have a history of those – some of them go back 30 years - still you need something.

So, what is the solution in HPC? How can managers create these shared experiences? According to Interviewee 7:

The answer is mix, mix, mix... keep mixing people, have them work abroad and learn about the thinking and mindsets of the folks over there... this is the best way to learn.

The mixing of people seems especially important due to the lack of a common knowledge sharing system. Furthermore, the majority of senior managers have been working in HPC for 30 years. A strong collaborative culture has been built among this group of individuals. Having the opportunity to tap into their knowledge, the source of organizational memory apparently, is invaluable to prevent reinventing the wheel.

Interviewee 9 speaks of differences in cultural backgrounds and mindsets as a source problem in building consensus:

It's largely a mindset issue, in my opinion. You need common ground on which you develop effective communication. If you don't have that, you guys can be talking the same words, but saying different things, and I watched this happen many, many times, because I spent enough time with ... these people, and I really knew what they were saying, based on their backgrounds ... and the backgrounds were different.
We have most problems in dealing with contracts in foreign lands, where we try to communicate to our customer in a third language. Even when we are using an interpreter, it's really difficult to communicate effectively, because you're working with totally different experiences, and the same words mean totally different things. 'Yes I hear what you said, but I am not sure I understood what you meant'. This is true with customers as well as with our own folks [HPC managers] across borders.

The individually constructed subsystems mentioned earlier are organically grown repositories containing privately held bundles of knowledge and information. However, the drift towards subsystems has led to tensions among teams, especially cross-culturally. The tension may also be a result of the perception that certain individuals have stronger

business relations with senior managers at headquarters that are the experience 'backbone' of the firm. A US senior manager elaborated further on the difficulties in reaching consensus with senior managers in Germany during meetings:

> Differences in culture are huge. I say 80% of Germans are much more rigid in their method, they aren't so open, so innovative – not all of the Germans are that way but 80% of them [have] a certain kind of cultural behaviour. It's really different... my colleagues here are much more used to a more open kind of way to develop a business plan ... the Germans are much more rigorous in their ways ... sometimes they're far too rigorous. It takes them 6 months to develop a strategy that should only take 6 days on our part. So you have to learn to estimate to be able to reach conclusions, and they seem to have a hard time doing that. I would say in the time that I was in Germany, people I was dealing with, 80% of them had a cultural behaviour that had a tendency to dig very deep, not be in touch with how to get there, whereas here [in the US], my colleagues are more time-driven, and you do what you have to do to meet your time line. So it's a cultural issue.

A manager implied that the German-dominated management thinking sometimes gets in the way of taking fast actions and makes the units with more potential to grow less efficient. The lack of access to organizational know-how, transparency, and widening cultural gap between Germany and the US led to further political tension (Interviewee 9):

> ... corporate politics plays a strong role, that's a cultural kind of issue. That's where it starts, at least. If I look back over my 30 years, in this company, there were more political and less political times. I can say that the more we grow and have to work with other cultures, the more political decisions get because different incentives come into the game. How does it related to IS? Well, how can they not be related? It can be one of the biggest business strategy blockers.

The above quote was acknowledged by many senior managers at the US OU during interviews and informal conversations, where they attributed the different worldviews among the units for the culture of resistance to knowledge sharing – and for the creation of subsystems. Thus, it would seem that the physical and cultural distance inhibits them from building closer social networks with experienced executives, who have control over resource allocations. This distance has fostered increased cross-cultural communication problems and increased political tension among younger and more senior managers, and among German and US managers.

The lack of IT-driven systems, but the presence of human-driven socialization, meant that knowledge sharing was happening within units, but not as much across the units. Within OUs, managers were able to collaborate eventually. But when it came to cross-cultural communication, inter-unit level conflict was almost always something to deal with. Whether this was more a culture issue or a lack of systems integration, or a corporate governance issue, the responses varied. Those who advocate an integrated IS argued that IS platforms would help managers to communicate more effectively on the basis of a

common knowledge base. That way, they would be less tempted to operate from their own subsystems. On the other hand, the use of integrated systems themselves calls for a collaborative mindset in the first place.

This is the point of departure to summarize the key findings. Notably, there are findings that could not be incorporated in this chapter due to lack of space and the difficulty to structure them. These will be integrated into the analysis in chapter 7.

6.2.1.6 Case Summary

This section portrayed a raw picture of some of the key issues investigated at the German and US OUs in HPC. The components were most of all in reference to strategizing, exploitation and exploration strategies for using IS, enabling or disabling IIs, and attitudes towards change. The following could be identified, specifically at the US unit:

- The 'Alliance Approach' to strategizing requires the synthesis of a wide array of data, information and knowledge from across functions and OUs, i.e. US and German units. This includes exploiting organizational engineering experiences, managerial experiences, as well as the innovation ability in customization processes.

- The lack of electronically available MI, and lack of integrated systems do not seem to provide an enabling knowledge sharing environment for strategizing.

- At least initially, there seemed to be a drift from relying on organizational IS (i.e. social networking) to individually constructed subsystems. Subsystems seem to provide managers with some degree of flexibility when they try to be efficient. A closer look may real that the subsystems may have always existed, but they may not have been used in a strategic manner. This is because the nature of these subsystems is very simple and can be created anytime. It remains open for further analysis.

- Compared to their US counter parts, most managers in Germany seemed to have an easier (or more accepting) attitude towards coping with the lack of ICTs and systems integration. The organizational IS seemed to be better suited to the ways in which managers in Germany work.

- A 'side effect' of the subsystems was that they seemed to have contributed to a widening cross-cultural gap, where managers relied heavier on their systems and networks, and relatively less on making an effort to make cross-cultural knowledge sharing flow better.

Due to the entrepreneurial nature of their work, US managers performed best when they had the room to improvise while adhering to the top-down strategies from the German headquarters. In order to cope with changing environment, the approaches to strategizing involved simultaneous exploring opportunities and exploiting resources. Personally managed IS were found to enable them to do their jobs more efficiently. As of the IS strategizing framework, the interplay between the II and the IS strategies, as well as between top-down and bottom-up IS strategies, became evident. The findings will become meaningful in chapter 7 when they are compared with the second case study and discussed in relation to the literature. The next section showcases the second study.

6.2.2 Case 2: PCS

The presentation of the empirical information will be different with this case study due to the different nature of investigation. Apart from interviews and conversations, a six-month observation in one of the firm's US subsidiaries complemented the study. The first two months were spent learning about the business and the organizational systems. The focus was on the manner in which strategic actors, i.e. individual financial advisors and teams, leveraged information and knowledge in strategizing processes. This was in relation to winning larger accounts and expanding the subsidiary's business portfolio. The idea of this case study is to provide an interesting case with different contextual settings. Furthermore, due to the interpretive nature of investigation, many of the findings make more sense as part of the interpretive analysis in conjunction with referring to the literature. This is found in chapter 7.

The majority of interviewees were senior, mid-level advisors, with some junior advisors. Emphasis was put on senior advisors because they have more experience with strategizing activities and are able to see beyond the organizational IS. Specifically, the study considered a particular team consisting of eight members, called the A-Team. This team, a high performer, attributed their success to their strategizing approaches and the ways they leverage information and knowledge. Their strategy was most of all based on meticulous individual research, cohesive team work, and being deeply involved in every strategizing process. Other teams at the same subsidiary were also considered who were less successful in their competitive strategizing (as of number of assets under management).

The below sections relate to the parts of the IS strategizing framework, where it illustrates a two-way interaction between the collaborative business strategizing with the firm's socio-

technical information infrastructure (II). The, the questions explore the link between socio-technical resources and the various systems to support strategizing processes. Many other aspects unveiled in the discussions, for example how managers cope with everyday changes of the internal and external environments, how these affect the on-going learning process and what the consequences are as a result of the status quo.

6.2.2.1 Strategizing Work

The researcher first investigated the nature of managerial work before attempting to make sense of the ways in which IS were used to support those strategizing processes. The ability to leverage corporate resources and IS are determinant parts of decision-making processes, and winning competitive bids (Interviewees 1, 2, 6).

At PCS, while overall strategic directions come from the headquarters, business strategies are devised and executed locally. This way, each office in its respective complex is responsible for business performance of that complex. An enabling entrepreneurial environment is essential to allow strategies to form and be executed within and among teams. A senior advisor (Interviewee 7) commented on the ways in which strategies coming from the top are combined with those at the subsidiary level:

> There is no grand business plan or strategy coming from the top telling you how things are done; you figure it out yourself with your local businesses and clients. This makes the organization extremely adaptive to change.

Previously in chapter 5, section 5.2 described the work that goes into competitive strategizing of financial advisors. Advisors work together with their social networks and use the IT-based corporate information resources to create customized marketing material for clients. A VP senior advisor, who has been with PCS for over nine years, commented on his strategy (Interviewee 1):

> Most definitely, structure drives strategy. We have unlimited resources and we strategize around them. Within the different structures you also have different strategies. For example, Sam is strategizing around Equity structures, John around Fixed Income and so on. Mark and Tim are at the top and we drive the strategies. We strategize as a team.... We trust each other.

The foundation of the knowledge work, to a certain extent, is consistent over time and for each business case: the putting together of a business case involves the integration of various forms of data, information and knowledge about the markets, internal competencies, products and services. This involves interaction with external suppliers, exploiting existing cooperative arrangements and creating new alliances with other financial

services firms. It involves networking with prospective clients through multiple channels, such as cold calling and referrals. Undertaking these tasks require putting together extensive research on many levels. The outcome will be a customized financial and marketing document for prospective clients.

An interesting finding was the slight discrepancies between attitudes towards a strategy and the actual strategizing in action. When interviewees were asked about deliberate and emergent approaches to strategies, it took some time for advisors to make conceptual distinctions between them. At first, most senior advisors claimed that their approach to strategy is always 'most definitely deliberate', and so was their use of IS (Interviewees 1, 2, 7, 11, 13). With one particular interviewee, his posture and voice changed to more deliberate and authoritative state and said (Interviewee 1):

> Strategy is what I do every day – it's all top-down, we don't improvise, otherwise the team and the client will be in trouble. We have to decide as a team what to do and take into account interest rates, client's plans, and so on…. [Mark] and [Tim] are owners, they set the structure and we strategize in teams.

This was quite indicative of the corporate culture of PCS, which encouraged people to speak in deliberate terms when it came to strategy, decisions and information. Yet observations over several months revealed a different picture. During discussions on different occasions, interviewees were asked again about specific steps they take during strategizing (not just about strategy). Interviewee 7, for example, said the following while reflecting on a recent client case:

> Structure, strategy and response to change - very interesting how they work together… you got to work with the goal to be ahead of the curve, respond locally and lead globally. … Management has to incorporate changes everyday. It's both, you have the top-down strategy and then the action is always bottom-up. Everyday things change and they change so fast, you have to incorporate all changes in your decisions.

A top-down mentality may be attributed to the corporate culture, which rewards advisors on monetary outcomes, not necessarily how much they learn and share with the rest of the firm. Interestingly, there was a slight different culture among senior advisors – one which focused on every step of the process rather than a definite outcome. While this may seem somewhat obvious to the reader, this finding made a major difference in managerial mindsets, and the ways in which they leveraged information and IS. Interviewee 1 commented after a conference call with other team members on the status of a prospective client:

> You've got to focus on the process, …. the activity, not the outcome. If everyone focused on what has to be done, the outcome will show itself. Armstrong focuses everyday on watching what he eats, exercising, training etc;

he doesn't focus on winning the race all the time. Strategy is just the same, focus on the process.

This statement came from the senior advisor who earlier had defined strategy as 'definitely deliberate' and that 'there isn't room for improvisation'. When he was interviewed again, while he was engaged in the strategizing work, his response was more reflective. Despite the conscious effort to plan and structure chaotic processes in a day, observations indicate that as soon as the first step was taking in a strategy, several elements shifted, client or market related information changed or some other issues emerged which had to be dealt with immediately. The cycle of revising the (old) strategy would begin the next day. Needless to day, strategizing in everyday action was unstructured, and advisors had to juggle with unexpected events, despite the amount of preparation and prediction. These changes that could not be planned for in advance ranged from dealing with consequences of under-performed client portfolio, to managing external money managers, emerging competitors, changing client demands, and even changing team members. Each of these affects a series of other activities and decisions.

Interview 7 confided:

> I am usually paranoid about what kind of information I am getting. It takes time to develop a sense for what's the right information... you are overloaded with information from all angels ... it can be very distracting.

Here, the challenge is not as much about having the right IS as it is to be able to use the IS in the right way. This 'right way', comes from experience and certain managerial skills, according to Interviewee 13. Here, the manner in which information is scanned, filtered and processed is part of the doing of the strategy, whereby a serious of different tools may be used.

On the client side, what is most critical to win businesses, besides the financial know-how, is the nature of communication with clients. Compared to HPC, advisor-client relations are more critical due to a higher level of scepticism of clients on the role of a 'trusted advisor', and due to more fluctuating external markets (relative to the more stable hydro markets). Hence, the success of business growth depends much on exploiting organizational tools while incorporating personal and commercial knowledge (Interviewee 1). Knowing this makes the manner in which IS are used more evident.

6.2.2.2 Information Systems & Socio-Technical Context

A major part of the business development work is to continuously scan the environment, examine possibilities, and identify new opportunities for winning accounts and growing the team's business. The organizational infrastructure is rich and well aligned with the way the firm's overall businesses are structured. In the initial interviews, the advisors indicated their appreciation for the richness of the II, and expressed the value added of corporate IS to advisors' performance compared to their competitors in the industry (Interviewee 7):

> Because of our research and market know-how, we are one year ahead of everyone else in the market. [Company X] is one step down and at least a year behind because they don't have the richness of information infrastructure and research in place. Our research can't be beaten in the industry. [Company Y] is at least 6 years behind, mainly because their organizational structure is too rigid and top-down. They are told what to do, what to say, what to sell - very much monitored.

Subsidiaries seem to be well equipped with centralized IS. The Corporate IT-driven information infrastructures (IIs) provide comprehensive analysis tools, and various other platforms. An advisor, who has been with the company for eight years, states (Interviewee 8):

> The information is there; it's up to them [teams] how they use it; their business strategy depends on how well they leverage the resources... interesting how it works...

The centrally controlled person-to-document IS platforms were seen as vast, rich and sophisticated (Interviewees 1, 2, 3, 4, 5, 6, 7, 8, 13). Advisors log-on the company's global Intranet site and gain access to massive data and information, specialized and financial applications, knowledge platforms, educational courses, information forums, white papers, optional daily teleconferencing, and so on. Individual offices are continuously informed about corporate updates and market information through internal use only emails, notes and post. They are informed on organization- and market-related news, compliance issues, and regulations on regular basis. The network of resources is linked globally. The search engine allows advisors to connect to employees, and information on products and services.

Further observation revealed that those who used the corporate IT resources most frequently were junior advisors, who lacked experience and the social networks. Most of their time was spent on educational programs. A primary role of the top-down corporate IS was to educate advisors, monitor their, behaviour and performance, and so determine their compensation. While at times it seemed that these IS were controlling the decisions and action of human agents, there were other times, when human agents had to find ways to

manipulate the top-down and also rigid organizational system in order to stay competitive in their business. This was primarily observed among senior managers. Hence, while it was recognized by advisors that the top-down IS were valuable resources, they also sometimes were big, heavy and not transparent (Interviewee 9). There was a general struggle to learn how to use the systems in a strategic manner while engaged in strategies. This determined how efficient they could be.

Hence, two challenges were identified: first, there was little time and little guidance to navigate the systems; and secondly, there was relatively very little person-to-person enabled IS. According to a senior advisor (Interviewee 13):

> [PCS] has so many resources...the question is whether you use the resources. [PCS] is such a big organization and there is so much information disseminated across all levels. They are so dispersed, though, it's impossible to know everything.

From the outset, it many not occur that the sheer amount of data, information, tools and applications on the system may actually have a diminishing return on the level of systems usage by advisors. Surprisingly, the investigation indicated that indeed there is relatively a small percentage of the IS used by advisors in their business development activities - relative to what is available and the exploitation potential of the resources. Interviewee 9 stated:

> It takes time to learn how to get all the information and resources that are there ... and to make the most of it. I could sit down and brows for as much as I like – but that's not my job.

The highly structured IS networks make it hard to find key information fast. Once information is found, people were hardly able to track back the route on which they found it – so most of them did not use the system again, and instead referred to the firm's employee support services via the telephone to find more information on their inquiries. In order to effectively exploit the IT-enabled information, advisors have to be very precise in what they are looking for (Interviewee 3, 4). Interviewee 1 stated:

> We all have the same amount of time - 24 hours. You've got to be efficient. How efficient you are is up to you. I don't have time to search the system. I often call up someone on the team.... I can be efficient because I know people who know what I need to know. That's the difference between us and other teams ...

The effort to manage the investment strategies and relationships with current clients, and at the same time bidding for new clients on an ongoing basis, hardly left time to explore what is available on the system (Interviewees 1, 3, 4, 7, 10, 13). Furthermore, ongoing internal rivalry made most senior advisors hesitant to using centrally available IS, which were readily

available to all members. This gave a sense of diminished return of the IS, ironically, despite its vast scope and scale. Last but not least, senior advisors were silently aware of the extent to which top-down IS were basis of corporate surveillance, and monitoring the performance and activities of all employees. This had substantial affect on how and how much these IS was used.

The strategizing work requires the advisors to be able to exploit relationships and while exploring new opportunities at the same time. Interviewee 1 said:

> At this level you don't need a distinction between IT and business; depending on which capability you want to focus on, you structure around it.... You can use IT in your strategy, it can help, but it's ultimately you and your strategy. IT is just IT.

Building business based on trust in the face of internal rivals, market fluctuations and external competition cannot be based on purely deliberate strategizing, or on the use of deliberate forms of IT/IS. A senior advisor reflected on a long day of work before a meeting with a major prospect client on the next day (Interviewee 2):

> I know everything there is about the client and yet I feel I'm never prepared enough. I always prepare for all that could possibly go wrong.

The advisor had a meeting on the next day to present the business proposal to the prospective client, for which he had conducted meticulous research on the case. The client's customized business case, which was going to be presented, encompassed at least three month of in-depth research and strategizing work. This included all the information that could be retrieved from the corporate IS to prepare the documents. A large team had been preparing information, graphs and presentations on alternative investment strategies for that client. This information had been based on the firm's latest and comprehensive research database in relation to the financial needs of the prospective client. Having accumulated and created all the information for the content of competitive proposals, the next step is to convince prospective clients of advisors' capabilities and personal knowledge. Based on conversations, all the work that goes into preparing the proposals does not matter as much as the environment of trust and knowledge sharing that the advisor creates while presenting the proposal to the client. For this reason, a lot of the knowledge that determines winning the bid is tacit, experience-based, and dependent on the unique personal knowledge of the advisor about the situation at hand. At the end, the massive II seemed to be only a basic supporting tool to advisors and not a determining factor in winning more business (Interviewee 1):

> I see IT as a tool. It's like looking at a hammer .... to me, the shape of the hammer hasn't really changed since Deming. You have to be prepared for all that can go wrong – and there's lots that can go wrong.

According to the senior advisor, what determines the success of the meeting would be his ability to make decisions when the meeting does not go as planned. Hence, a lot of time was spent to develop scenarios for possible situations and the consequences of alternative decisions. While using the tools in the corporate system, the personal knowledge of the advisor on the client and the sense of how the client might interpreted the numbers, all played a major role in how the various IS were chosen and applied in the strategizing work.

Members of the A-team saw one reason for their efficient and effective performance, their ability to judge what information is key, and which can be avoided (Interviewees 1, 12, 13). According to a retired senior advisor, a significant managerial ability is to see the relevance and risk in information before others do, and process it right away (Interviewee 10). Well, that requires not only IS, but most of all the personal knowledge from experience while being involved in the complexity of the situation (Interviewee 10). At the same time, it is equally important to know what does not matter (Interviewee 1 and 7). This is significant in being efficient and productive, given limited time, information overload and conflicting demands. A senior advisor on the A team stated (Interviewee 9):

> You've got to have a strategy to filter the noise. Filter the noise and get rid of the fat. I'm very efficient with my time. Just focus on what you need to know and leave the rest. That's the only way you get to be efficient.

'Filtering the noise' refers to the information that comes from external (markets and competitors) and internal (information overload or competitors) sources, which may adversely influence an advisor's decisions and focus. The role of IS was seen as neutral. It was the person who had to learn to use IS in navigating against the wind (Interviewee 10).

Advisors on the A-team had deliberately developed approaches to guard themselves against such 'pollutants' (irrelevant information, people, and resources) to minimize distractions and loss of time (Interviewee 1, 11, 12). While there were advisors, who welcomed in-flowing information (Interviewee 3), the A-team was very particular as to what was relevant to their strategy. Some of these channels were email, telephone calls, visitors, external partners, visiting wholesalers, and so on.

It was evident that what was made available through the person-to-document corporate IS was not necessarily seen as supportive, or enabling. Besides IT-enabled corporate resources, the success of a competitive bid was highly dependent upon specific managerial skills (Interviewee 1, 7, 11). These would be further developed and fine-tuned through ongoing

learning, conversations with specialists, internal investment strategists and external partners, money managers, and so on. Interviewee 9 stated:

> We [PCS] provide the information systems - intranet, Internet, proprietary software and so on – the rest is knowledge driven, people driven. It's about people. Client demand is what drives the strategy.

The knowledge work involved in competitive bidding is not sequential and it is difficult to forecast when things might change (interviewee 11). In addition to the main document-to-person strategy, advisors used a formal social networking system, where they could reach experts in specialty areas (e.g., insurance or real estate). When senior advisors look for specific data or information, these are typically delegated to a junior advisor. For experience-based knowledge, they contact colleagues in closer social and professional circles, who have worked with a similar category of clients and are able to provide their personal know-how.

However, there were two difficulties in the past: finding the right expert, and obtaining the knowledge they need from that expert. Experience has shown advisors that once they have found an expert outside their region, the nature of the network takes on a different shape. Individuals and work systems are organized in a different way in different regions, specifically in different core businesses such as investment banking or investment management. A major complaint about IS-based social networking was the massive amount of information and knowledge hubs one needs to scan and identify. Most advisors expressed the need to 'Build shortcuts to experts and the overall knowledge networks', as the whole process of finding key information was overwhelming and time consuming. Advisors 5 and 6 implied in a joint interview:

> If you are trying to reach someone outside your region at PCS, you get lost in an ocean [of people]. All of a sudden you deal with a whole different network. Communication is most effective in closer circles, so what you eventually get out of the [search] process are mixed messages. In the end, you have to decide what really matters to you.

This is one of the reasons most senior advisors make limited use corporate IS and instead, constructed their own subsystems as a flexible knowledge base to enable more efficient strategizing processes.

6.2.2.3 Personal Subsystems & Knowledge Networks

In action, advisors used deliberate and emergent forms of IS in an intermingled fashion, according to the situation and the nature of information. For example, chapter 5 outlined

the type of knowledge work that goes into business development. The nature of data and information ranges from highly technical to information about client's past and future goals. These can be collected from the combination of PCS's systems, calling other team members, meeting with the clients themselves, or reading the client's biography, for example (Interviewee 1). All this information about the client need to be stored in a place, processed and developed to help build a competitive business case.

It was observed that, among senior advisors, the use of IS was more private and secluded, i.e. in the form of subsystems. Subsystems are personal platforms on which advisors store filtering data, information, as well as cues on experiences and ongoing learnings from particular situations. These are continuously updated and expanded. Just as it was the case with HPC, these subsystems, more than anything, reflect the *ways* in which advisors strategize, i.e. simultaneously exploit corporate resources and learn from emerging challenges (Interviewee 1, 7, 10, 11). These are synthesized and stored in files or incorporated into processes according to the advisor's ways of approaching strategic issues. It was difficult to identify them because these are quite integrated into processes and into the doing of the everyday work.

Subsystems allow advisors to make faster adjustments to changes. The reliance on corporate IIs would not be an optimum strategy if one wanted to respond swiftly to environmental and organizational changes. The company's infrastructure, due to its size and wide range of specialty areas, sometimes lagged in response, or did not capture changes in information most relevant to some advisor's work. In competitive bidding, conveying the perception that advisors are ahead of the competition is another determining factor in gaining prospective clients' trust (interview 1, 2, 10, 13). Response to change and adjusting the strategy accordingly are ongoing for advisors.

The use of subsystems can be conceived as of a *strategic use* of IS, whereby these helped advisors to remain flexible and change with competitive environments. While the corporate IS had personal pages for advisors to manage and develop their strategies, these still seemed rigid and not the preferred way of working (Interviewees 3, 9, 4). Their subsystems provided a flexible structure around their emergent and chaotic strategizing work. They have to be created manually, they provide focus in terms of very specific information, and they provide flexibility to enable individuals to adjust their strategies according to changing circumstances or perspectives.

What makes them valuable is that they are path-dependent, context- and relationship-specific (Ray et al 2004, Ciborra 1993); path-dependent because the content consists of information and knowledge that advisors have created over a long time, rather than just data that is readily available to everyone on the corporate IS. The information is based on the experience of the advisor who has worked on the specific business case, built trust with specific people in specific situations and networks. Furthermore, the relationship specificity of the subsystems makes them difficult to transfer to others, meaning that if a rival gets a hold of it and attempts to use it, unless they are attempting to get specific information on specific clients, the subsystem is not as valuable to them. It can be implied that subsystems are as valuable as the strength of the relationship between the advisor and the social network therein.

Another problem was the resistance to knowledge sharing. While advisors are dependent on the cooperation and trust of other organizational members to provide expertise, the sense of competition and possible distrust was a pressing issue. The level of trust and openness had a large influence on their choices of IS use (Pauleen 2003; Wilson 2002). Hence, subsystems also seemed to be a result of a culture, which did not want to share and collaborate. Or, the subsystems were the result of a culture, which never was willing to collaborate. As mentioned earlier, the A-team was an exception. In any case, all advisors agreed that cooperation in teams was essential, very little knowledge sharing and cooperation actually took place (Interviewee 3):

> The problem is not our strategy or structure, it's the people who divorce themselves from human contact, go to their offices ... and close their doors.

Interviewee 1:

> Trust - is lacking! When people don't trust each other they don't share. Within our team, capabilities are very well aligned, high cooperation. It's a swat team within PCS; we never slow down. Others [advisors within the subsidiary] don't want to participate [to expand the team].

Another advisor stated (Interviewee 12):

> What's lacking here is more face-to-face interaction, not just emailing or text-ing. When you talk [face-to-face], it's a different dimension of communication. When you don't get that level, over time, then people distance themselves instead of collaborating more. This isn't the best way to operate in a team...

Hence, interviewees mentioned that they often referred to the social networks they had created for themselves (on the basis of their subsystems) across various locations, functions, and organizations (Interviewee 2). They would get to know these individuals very well through frequent person-to-person interaction, and then maintain communication through

Email and telephone. Many of these individuals were experts in one area or another, with whom they shared at least one aspect of the strategizing process. This way they were more certain that when knowledge sharing takes place, it will be based on relevant information and experience, rather than standard information (Interviewee 11).

> I have my group of people who tell me what I need to know. I know I can rely on them. Saves me time, especially when I am on the road.

Most of all, among the advisors and the selected network of expertise, there is a shared mindset and similar ways of thinking about emerging issues. This way, it is easier for senior advisor to delegate certain processes of competitive bid. Interviewee 1 stated with utter conviction:

> We trust each other and communicate very openly. When I say something to [Tim] he doesn't get offended. He knows what I mean and trusts that I can fix a problem... Our relationship goes back 10 years. I know what he's talking about before he finishes his sentence.

Similar ways of thinking among members in the same social network was essential, especially in areas were uncertainties and changes were inevitable. Here, one can see how the individual subsystems have emerged.

On the other hand, subsystems seemed to have encouraged further resistance to knowledge sharing and increased internal competition. This inhibited the open-door-policy corporate culture that was encouraged. Instead, individual advisor had crated their own circle of experts from inside and outside of the company which whom they shared long experience. The implications of contradicting demands (compete - collaborate; share - build new business) were also adverse towards building organizational memory, where organizational culture drifted from collaboration towards one based on exclusivity and individual reward systems.

6.2.2.4 Case Summary

PCS is different from HPG in its socio-technical context and IS richness that it already possesses centralized and market-specific global infrastructures and tools. Notably, all of the IS resources were based on a person-to-document basis. The study found that the use of IS had been shaped according to advisors' strategizing needs, which had been manifested in subsystems. The following are the findings:

- The nature of strategizing is characterized as turbulent, where decision-making about a particular target client and information undergo constant changes. For

example, while deliberations seems to be an engrained element of the corporate culture and mindset of advisors, in reality, the process of the overall action of strategizing from the beginning to the end of a project had a great deal of emergent properties on the micro-level. Apart from the nature of the work itself, contextual factors played a large role. For example the degree of involvement of advisors in a team changes fast because of the tension between that member and an external party (client or money manager). There are changes that need to be constantly incorporated into the old strategy, where it is revised and communicated as a 'new deliberate' strategy under up-to-date circumstances. A senior advisor reflected:

> I use the example of a boat in the ocean as synonymous to change.
> Sometimes the ocean is turbulent, sometimes it's calm. The boat [strategy
> of the team] is designed to navigate through storms and during calm times.

Furthermore, despite the analytical content of work, the dominant form of knowledge in competitive strategies was highly tacit and experience-based. The information provided by the global II alone would not be enough to win higher profile bids which require more client interaction than a standard client case.

- While the rich IIs seemed overwhelming in terms of scope and scale of information, ironically, these were perceived as diminishing return because of the organization-wide access and team competition. It was observed that the knowledge work was predominantly gathered through personal relationships, rather than from any particular IS strategy. The amount of time advisors spent on the phone talking to team members far exceeded the amount of time and level of use of other ICTs (email being an exception). While this was not measured formally, it certainly emerged from observation, conversations and interviews.

- Although social systems at PCS were immense in scope and scale, these were not much help to advisors, unless they had met the person in circumstances, where they had similar situations to share (Interviewee 8, 9). The lack of face-to-face contact, and thus the opportunity to build professional networks within the firm made the use of corporate social networks difficult. Hence, the value of the social networks was bound to the condition and process in which they were created. For example, the difference between the social network of senior advisors to that of junior advisors was that the former had built relationships through many years of collaboration and trust building, where the latter relies on the II and a wide network of experts who provide them with information – information that is not of

specific enough to provide competitive value (with some exceptions). This finding makes the inherent value of relationships, and similarly knowledge, context-specific in the area of business development.

- As a result, there appeared to be a drift from an organization-wide (primarily IT-led) IS to individual subsystems, consisting of key information, contacts and knowledge cues that were gathered over many years.

- At the same time, we saw indications of political tension and a culture of resistance to knowledge sharing. Could these be a result of the culture fostered by the subsystems or are these tensions inevitable and personal IS strategies allow advisors to perform in their own way? This remains to be seen as we interpret the situation more deeply.

In this context, the IS strategizing framework helped to make the distinctions between elements of IIs and top-down versus bottom-up IS strategies. The elements of ongoing learning and continuous change management were highlighted. Furthermore, as much as the interview questions were about IS, the findings re-directed the researcher towards the users, i.e. advisors, and their dynamics with socio-technical issues of the everyday coping. Nevertheless, these will interpreted with regards to the literature in chapter 7 in an attempt to understand these dynamics better.

6.3 SUMMARY OF THE FINDINGS

The findings from the two case studies are summarized briefly before continuing with their interpretation in the next chapter. Furthermore, the supporting theories that will be used in chapter 7 are revisited. The boxes below summarize the problem situation. First, the IIs and IS are described as they were found on the organizational level; second, the use of subsystems are noted on the managerial level; and third, potential long-term effects or consequences to the organization as a whole are noted. Hence there is a tendency to move from a more descriptive to interpretive explanation as we move from the 'whole' to the 'parts' and back to the whole.

At HPC, we can imply the following at this point:

Characteristics of Information Infrastructures and Systems:
Question: Problem Situation or a form of IS Strategy?
- Information is hard to find; most project files are still in paper format and stored in filing cabinets. Information in electronic format is limited to engineering data, drawing software and basic search engines.
- Decentralized and unstructured information; disintegrated legacy systems
- Weak level of person-to-document IS lead to increased the reliability on person-person communication. Dominant corporate IS resembles that of a personalization strategy, where knowledge is shared through person-to-person communication.
- Most business knowledge, i.e. experience, is embedded within the heads of senior managers who spent most of their time at the German headquarters. These have become a major part of the organizational memory (OM) and are the main source to transfer the learnings to new managers.

Emergence of individual subsystems:
Question: A solution to or consequence of the problem situation?
- Managers compensate for the lack of an enabling IIs and integrated services
- Subsystems contain relevant key data and information, short-cuts to difficult to find information, knowledge cues, etc.
- Constructing their own information platform and knowledge-base to support strategizing activities and so be in control
- To create flexibility by being able to incorporate internal and external changes faster than the corporate IS would.

Unintended consequences of subsystems
With most of the OM residing in the heads of senior managers and in the widely dispersed and individualized subsystems across OUs, the following difficulties were identified:
- The use of subsystems as a political tool for bargaining power, inhibiting inter-unit knowledge sharing, transfer, and organizational learning
- Widening cross-cultural gap and problems in consensus building; Frustration over hidden information and knowledge due to limited access to knowledge workers
- Differences in mindsets and management thinking drift OUs further apart .

Figure 6.6: Overview of initial findings HPC

While HPC seemed to lack solid IIs, compared to PCS, the frequent exchange of knowledge workers across global offices (as a form of deliberate socialization strategy) helped to foster the knowledge sharing culture that PCS seemed to be lacking.

Interviews and observation from the second case company revealed the following:

Characteristics of Information Infrastructures and Systems

Characteristics of Information Infrastructures and Systems
- Uniform, centralized IIs and standardized systems
- Dominant corporate IS strategy resembles that of a codification, i.e. person-to-document approach. All data and information are available on the corporate Intranet, electronic filing systems and many other proprietary systems.

Perceived problems by advisors:
- Lack of transparency and information overload, leading to inefficient use of the corporate IS
- Perceived 'diminishing return' of that which is available centrally to all advisors (IT-based as well as social networking events)
- Lack of open knowledge sharing environment, culture of distrust and limited use of social networks.

Subsystems: Managerial way of using IS
- Senior advisors compensated for the lack of a knowledge sharing culture and rigid IIs by constructing their own information and knowledge platforms, which took a primary role to the corporate systems as the subsystems matured over years of advisors' experience
- Advisors were able to incorporate internal and external changes faster to their own systems than the corporate IS was capturing these and informed them
- Subsystems would become repository for relevant and key data and information, short-cuts to difficult to find information, and specifically knowledge-based experience.

Unintended consequences of subsystems
- These systems seemed to encourage further resistance to knowledge sharing, i.e. a culture of distance subsystems were used as a political tool for bargaining power for more unique knowledge resources, i.e. hidden knowledge or links to key individuals
- Adverse effects on OM and on-going learning of junior members.

Figure 6.7: Overview of initial findings PCS

It would not be easy, nor appropriate, to formulate absolute conclusions in this interpretive study. The way in which the whole process is interpreted affects the way in which one views the emergence of the subsystems. Whereas the drift from corporate II/IS towards individual subsystems and knowledge platforms may be interpreted as a managerial solution to an organization-wide II problem, it may also be seen as part of an ad-hoc or emergent IS strategy which needs more structure and resources in order to play a more supportive role organization-wide. Subsystems may be seen as an unintended consequence of the broader corporate IS strategy which could not be captured in the research. Nevertheless, as of the interview data, we can prematurely imply that from the managerial perspective, subsystems seem to be a micro-level IS solution to the organization-wide II inefficiencies, where they seem to provide the efficiency and flexibility aligned with those micro-level managerial knowledge needs. At the same time, they seem to have some adverse implications on the internal organizational dynamics, i.e. organizational memory (OM) and knowledge transfer across units and cultures, which make a top-down attempt to

systems integration via ERP systems very problematic. Chapter 7 will embark on these questions using the conceptual underpinnings of the IS strategizing framework and the supporting theories to inform the practice.

Generally, it was evident that a combination of high level analytical information and tacit knowledge is required to create a business case and establish long-term relationships. Also, while junior managers/advisors were the predominant users of formal IS, experienced senior managers/advisors were found to rely heavily on tacit knowledge and their own social networks – or informal IS (Land 1991). Furthermore, it became evident that the latter group, who was the heavy user of subsystems, had the capability to reinvent a structure around the chaos and muddling through of everyday work. These actors would involve themselves less in formal processes and more in integrating themselves into the strategizing at the corporate management level to further expand and enrich their involvement on the level were more exclusive information resides. At the same time, this would foster increasing cross-cultural and political tensions (i.e. internal competition), which seem to lead to adverse long term OM. The research thus could also prematurely imply at this point that, most barriers to knowledge transfer and sharing in decision-making processes stem from a lack of integrated social system and clashing mindsets, which led to misinterpretations of information, distance and resistance.

The below section revisits the supporting theories to inform the findings on conceptual grounds.

6.3.1 Supporting Theories

Besides the concepts pertaining the theoretical framework (i.e. II and IS strategizing, change management, ongoing organizational learning, and collaborative business strategy), several other elements stood out during the empirical work. These are in relation to the integrated use of IS resources and the roles of and the strategic actors:

Supporting Concepts	To address
• **The 'ambidextrous' organization** (Adler *et al.*, 1999; Zi-Lin He and Wong 2004; O'Reilly & Tushman 2004)	Efficiency and flexibility in strategizing.
• **The 'involved manager' as a mode of the strategic actor** (Introna 1997);	Managerial mindsets and a situated mode of the manager.
• **Managerial mindsets** (Gosling & Mintzberg 2002)	

Figure 6.8: Supporting concepts and theories

The notion of ambidextrous organizations is especially helpful in explaining the position of subsystems. The underlying assumptions of the involved manager, as well as the characteristics of managerial mindsets (see chapter 2), will be especially interesting to investigate the reasons for the using IS in an 'ambidextrous' manner, which could have led to the creation of subsystems. Notably, the emphasis on the strategic actor emerged as part of the sense-making process towards the end of the first case study. The researcher identified that the level of subjectivity depends much on the managers' interpretation of the world while they are involved in their particular context. More specifically, strategic actors are viewed as carriers of personal knowledge (Polanyi 1966) and considered in an attempt to explain the 'why' behind the 'how' in strategizing. These preliminary interpretations are illustrated in the figure below (a simpler version of the figure was shown in the beginning of the chapter). The bold indicate the elements that appeared to be dominant in the findings.
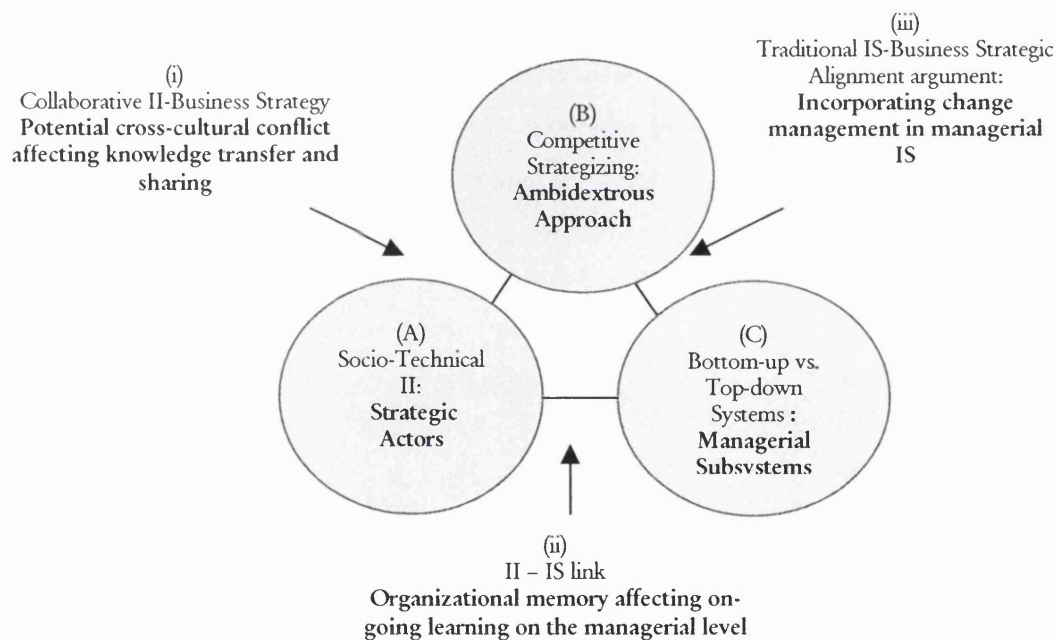
Figure 6.9: Initial interpretation - Dynamic interaction between the key components of analysis, and what they could mean

The figure highlights (A) the strategic actor as an explicit component in the socio-technical II; (B) the simultaneous and ambidextrous approach to deliberate and emergent strategizing; and (C) the use of IS in line with the ways in which strategizing was conducted, where subsystems mirror an ambidextrous use of IS. Furthermore, (i) the dynamics between strategic actors (as regards political tension and consensus building), and the ambiguous strategizing context, seem to affect the use of IS, and ultimately, the environment for knowledge sharing, on-going learning, and ultimately the organization's memory (ii). In order to mitigate challenges stemming from the contexts (A) and (B), and in order to cope

with conflicting IS managerial subsystems emerged to maintain ambidextrous strategizing demands and the shortcomings of corporate IIs (iii).

Chapter 7 interprets the findings in light of the IS strategizing framework and the supporting theories.

CHAPTER 7   ANALYSIS & DISCUSSIONS

This chapter critically discusses the findings in light of the IS strategizing framework and supporting theories. It also brings out potential contributions to the framework and identifies further research possibilities.

7   INTRODUCTION

This chapter analyzes the empirical findings in light of the IS strategizing framework and supporting theories to explain the manners in which IS were used by strategic actors and what this meant to the case organizations. The explanation derived from the analysis is

then divided into two arguments: (i) the emergence of the subsystems is explained by arguing that IS is immanent to strategic actors' mindsets and their involvement in strategizing, and (ii) the ways in which the subsystems feedback into the organizational whole affects organizational learning (OL), organizational memory (OM), and a knowledge sharing culture. The figure below illustrates the structure of the discussion in this chapter.

| Section 7.3 Main argument Organizational Challenge: Unintended consequences of subsystems

- Disintegration between organization-wide and managerial knowledge-base,

- Affecting ongoing collective learning and organizational memory overtime | Organizational Socio-Technical Context

7.3   7.2

Strategic Actors

Mixed use of D/E IS: creation of subsystems | Section 7.2 Main argument Managerial Advantage: Attempt to integrate top-down and bottom-up IS for ongoing efficiency and flexibility leads to subsystems.

The situated involvement of strategic actors in strategizing leads to the use of IS to become immanent to the strategizing process; suggesting an integrative IS mindset in strategizing |

Figure 7.1: Structure of the arguments (Preview)

7.2. Indicates a drift from formal organizational IS towards integrated use of deliberate (D) and emergent (E) IS to create efficiency and flexibility in strategizing.

7.3. Indicates how subsystems may affect the organizational systems and infrastructures as a whole in the long-term, with specific reference to knowledge sharing and transfer, OL and OM..

Specifically, section 7.2 aims to achieve a richer understanding of the findings in reference to exploration and exploitation in IS strategizing in the theoretical framework. Strategic actors are viewed as an explicit part of the information infrastructure (II) who use deliberate & emergent IS in an *intermingled* manner in business strategizing. Here, we find the notion of ambidexterity adopted from O'Reilly and Tushman (2004) especially useful in explaining the co-existence of deliberate and emergent approaches to business strategizing (cf. Mintzberg & Waters 1985), and the mixed use of various forms of IS in a congruent manner. We argue for ambidextrous IS strategizing, where managers adopt personal ways in reconciling exploitation and exploration information and knowledge requirements in their work. Here, the focus is not on a specific IS strategy to meet a business objective, but rather on using the most appropriate resources at hand which provide key information and knowledge, in other words, the strategic use of IS.

To this end, the notion of the involved manager (Introna 1997) complements the explanation. The author's conceptualization of strategic actors as finding themselves embedded in the strategizing work, or 'thrown' in the world, is congruent with our findings that IS are immanent to the strategizing work and the managers' mindsets. We argue that deliberate and emergent forms of IS were used in an intermingled manner while being involved in the strategizing world (i.e. the ambidextrous use of IS for the strategic use of information and knowledge). The literature that informs this argument is found in chapter 2.

Nevertheless, managers do not exist in a vaccum and their approaches to using IS have unintended consequences (Robey & Boudreau 1999). Section 7.3 informs the dynamic relationship between the IS and II components of the ISS framework. Literature that informs this section has been outlined in chapter 3. It sheds light on how the organizational communication dynamics may have been affected by the use of subsystems in terms of their OL/OM. The section argues that the drift towards subsystems, although important on the managerial level, may also have an adverse effect on the sharing and transfer of information and knowledge, and consequently, become the source of problems in building consensus and cohesive teams, specifically in the cross-cultural communication context.

The interpretation moves from the whole to the parts, and back to the whole. The discussion in this chapter will provide a foundation for the discussion regarding the contribution of this research to the IS strategizing framework in chapter 8.

7.1 ANALYZING THE CASE COMPANIES

The first two sections analyze findings from the two case companies separately, and 7.1.3 reflects on both. The manners in which experienced strategic actors used information and knowledge in the business development divisions in both cases were similar, in the sense that both constructed managerial subsystems regardless of the predominant form of II and organizational IS strategy. The arguments derived from the analysis in the light of new findings are the following:

- Strategizing involves simultaneous use of top-down and bottom-up approaches in exploiting corporate resources while exploring new possibilities, i.e. ambidextrous strategizing (O'Reilly & Tushman 2004);

- IS were used in a congruent manner, where deliberate and emergent properties co-exist in line with information and knowledge needs in the strategizing process. IS could be conceived as immanent to the strategizing process (Chia & Holt 2006);

- Along these lines, the involvement of strategic actors determined the manners in which IS were used and leveraged. Moreover, we acknowledge the notion of the 'involved manger' (Introna 1997) and argue for an integrated IS mindset in the strategizing process.

7.1.1 HPC - Analysis

Based on HPC's philosophy of 'Engineered Reliability', its strategy has been to provide complete power plant solutions through highly customized products and services to customers in the hydro power market. The joint venture in the year 2000 was a strategy to provide full service solutions to global energy producers. Increasing competition has introduced a second element to the 'engineered reliability' philosophy, namely services and trust-based collaborations between HPC and customers. Hence, the success of the company depends increasingly on continuous work with current customers as well as establishment of new businesses in a more aggressive manner than traditionally. This requires managers to possess expertise in highly advanced engineering and technologies for continuous product innovation, as well as an intimate understanding of customers' needs. Similar to PCS, the success of competitive bidding projects is highly dependent upon commercial knowledge and the ability to build long-term relationships based on trust and quality of delivery.

The process of competitive bidding is led by the proposal manager and the customer-front marketing manager who orchestrate the relationships between the technical managers, corporate executives, customers and other business partners. Their role requires efficiency in communication to gather, learn and share knowledge across functions and operating units. In this position, it is critical to maintain control of the big picture (i.e. the direction in which the relationship with the potential customer is going) as well as being flexible enough

to respond fast to micro-level changes and unforeseeable potential pitfalls that may lead to project delays and future complications.

The organizational II is one which grew organically throughout the years; one which was congruent with the emergent approach to strategizing of a family-owned German company. Traditionally, key knowledge components revolved around two elements: the product side and the business side. Traditionally, the product was indeed the business of the company and that is where the competitive advantage lay. The business followed a 'scientific' approach: extensive technical analysis involving engineering data, information, facts, evidence, research and development. Since the determinant parameters of decisions were based on technical facts and engineering performance, communicating those and coming to consensus was not problematic. Furthermore, decision making and negotiations took place on a face-to-face basis, on the telephone or via email. The company's well-established reputation in Europe for quality and delivery did not appear to require a change in their business or management strategy. The focus was on cutting-edge, engineering-based technologies.

7.1.1.1. Information Systems in Strategizing

Understandably, the predominant IS approach has been also that of an emergent, or personalization strategy, whereby managers use the company's organically grown social network to gather and process facts, information, knowledge, and wisdom. Hansen et al (1999) suggest that companies pursuing a personalization strategy should have a moderate electronic document system that supports people in providing background materials on a topic and guiding them to experts who can provide further advice. The social network consists of highly experienced knowledge experts (senior executives, managers, engineers) who have been involved in projects at the company for a long time. These individuals provide the knowledge backbone and are hence very valuable to HPC. They provide advice to junior managers and educate them around new business cases, products, the markets and suppliers. They are the primary – perhaps the only – source of knowledge and experience repositories since there are no formal organizational memory or knowledge systems in place.

Technical information is central to the firm and is embodied in designs, drawings, tools, equipments and blueprints (Teece 1992, 1998). Fundamental engineering and technical knowledge are held by engineers. The person-to-document information repository, most of which is in hard copy, consists of huge files of drawings, technical specifications, and books and other references engineers refer to. However, the 'how', 'where', and 'when' of applying them to customized projects requires the commercial experience of engineers and managers. This is where the person-to-person IS becomes most significant to the teams, enabling them to communicate effectively and make appropriate decisions at every step of the project. Interactive human-based approaches to knowledge management, such as informal networking and face-to-face meetings (Berry & Oakley 1994), are seen as predominant social networking strategies.

The most preferred method of sharing knowledge in strategizing is on-site meetings or video-conferencing. The personalization strategy, as the primary IS strategy, is based on exchanging knowledge workers among the operating units (OU) and between the OU and the headquarters in Germany. While the study took place at the US and German OUs, interviewees confirmed that this knowledge exchange strategy has taken place across all of their offices to varying degrees, depending on the level of project interaction. Interestingly, e-mail is the least preferred method of communication among senior and experienced project managers. Electronic means and tools are used to communicate facts and figures, engineering drawings, and to follow up on collaborative work processes (Interviewees 1,2,8,9,10,13,15, 16).

During the meetings, US colleagues are invited to headquarters where they review their performance and share their experience from their home markets. Individual experiences become a source of great advantage when the team is discussing a common bidding strategy for an international customer. When managers from different functions and nationalities sit together in a meeting, the biggest challenge is reaching consensus: tapping into the minds of individual managers and linking together appropriate pieces of knowledge and experience, (i.e. in regards to design, environmental and commercial issues, etc) to arrive at a competitive strategy and highly customized product plan. As part of this process, knowledge about personal connections and relationships with potential business partners is critical (Malhotra 2003).

The growth and further internationalization of the company as a result of the joint venture have introduced organizational and managerial challenges to the business and IS strategies. While competing globally, knowledge workers become dispersed around the world and establish themselves in their home markets. Two main problems were identified: regional competitive strategies were still closely monitored by the home office in Germany, preventing local flexibility and fast changes to market needs. This implies that the strategies incorporated a headquarters mindset. This introduced contradictions and inconsistencies. Second, the development of the II did not follow the business growth strategy. After all, HPC is 'not in the business of information technology' (Interviewees 15, 16, 17, 22) – hence there was perceived to be no need to invest much attention and capital in ICTs. As a consequence, the conversion of management information into electronic format has not been completely fulfilled and the traditional personalization strategy has been maintained as the best way to communicate. The lack of an IT-based information repository and the integration of information and knowledge platforms have led to increasing problems. Information disintegration and cultural distance raised challenges of consensus building in decision making, devising and execution of strategies. Lack of electronic-based information, standardization and systems integration led to problems of:

- Lack of transparency and hidden information
- Dispersion of information and knowledge: There is no single complete repository of information and knowledge is in the heads of senior mangers
- Bureaucracy, corporate surveillance and inefficiencies in decision making
- Difficulties in cross-cultural consensus building and understanding one another's mindsets.

One example of such problems is progress reports and approval of strategic decisions. According to many US-based managers, there is much 'unnecessary' reporting and paperwork involved in every management decision. From their perspective, German-dominated top managers adhere to a top-down, command and control management approach to decision making, and often inhibit an entrepreneurial culture in which managers materialize their insights. This rather traditional approach and the lack of a balanced socio-technical infrastructure was a hurdle to many US colleagues in leveraging information and knowledge resources from the headquarters and in establishing an independent strategy for their own OUs in North America.

7.1.1.2. Integrated Approach to IS and Business Strategizing

Already having a solid foundation in competitive product designs in the market, HPC's new strategy is to compete on the basis of service and customization. This indicates a shift from product-based competition to a combination of a product- and knowledge-based strategy. HPC's integrative competitive strategy developed at the US OU is conceptualized on the basis of a set of evaluation criteria. These criteria encompass the fulfilment of a series of initial services and know-how upon which HPC will be accepted or rejected as the primary provider in the competitive bidding process. This process is aimed to save about one year of work compared to the traditional way of winning contracts. As a major part of this process, sales managers work together with prospective clients from the outset on a one-to-one basis, and participate in every decision-making stage to provide them with the most customized product and build long-term relationships. This involves constant communication with project members (especially between sales managers on the client end, and engineers on the product end – the proposal managers orchestrating this communication) through efficient means to tap into technical data and project experiences. Inside the firm, this interaction requires a strategic integration of IS, business strategies and organizational competencies. The US OU managers are aware that the current II is 'not fit' to meet new demands (Interviewees 1, 7, 8, 23, and 27). Part of the problem outlined above is that competencies and relationships are widely dispersed (Teece 1992) and disintegrated, where managers need a strategy to leverage them efficiently to reap consistent benefits.

One could argue that the fulfilment of new strategies depends on two elements: an alignment between the new business strategy and a new IS strategy (Sabherwal &Chan 2001); and a right balance between emergent and deliberate IS strategies. Both elements are associated with considerable challenges (Katz 2002). In this case, top-down strategies would make managers less competitive because in order to benefit from past and current knowledge, they need to know the logic behind the previously reached solutions; 'cookie-cutter' solutions would easily make them less competitive (Interviewees 7, 23). At the same time, the process of continuous learning from below and knowledge sharing is costly, time-consuming and slow - and sometimes political as to who gets to spend more time with experienced managers.

Providing a unified platform to organize information and foster transparency has been recognized as requiring a conscientious approach to integration (Interviewees 12, 20, 22). The success of the strategy will depend on further standardization of methods, socio-technical platforms and a knowledge sharing culture among teams and OUs. Being aware that the company cannot compete without an integrated IS strategy, the CEO made the decision several years ago to invest in an ERP system. ERP systems have built-in processes based on 'best practice' industry models, where a company is forced to adapt the processes to the ERP software (Newell et al 2003). However, existing data and information are held in paper-based or electronic formats. There is still a large portion of HPC's knowledge-base that is not looked after, for example unpublished 'knowledge', research reports in formative stages, specific technical knowledge gathered through working with customers, customer- and process-specific business knowledge, etc. Their unstructured and heterogeneous formats make their integration problematic.

In the past five years, the company has had pilot projects on individual modules of the ERP system in selected offices, such as in Shanghai, which has a relatively low degree of legacy systems in place. The pilot project did not succeed because of differences in mindsets and management thinking at the Asian OU. When organizations expand across national borders, a host of conditions emerge that differ from those of their domestic operations (Katz 2002). These include, for example, national culture, competitive strategies, information sharing processes and worker expectations (Shore & Venkatachalam 1995). According to the IT and HR directors in Germany, there was a need to adjust management thinking before implementing standardized IS.

In general, managers are under increased pressure to integrate and coordinate country operations (Shore 1996). Ensuring that managers at every OU have sufficient resources and accurate information is a daunting task for IS managers. In the long term, not only are the information and knowledge requirements different according to the local markets into which the company has expanded, but increasingly, new knowledge workers bring their own mindsets and ways of working from their local culture. The level of difficulty and range of challenges depend on the function and scope of responsibility. For example, potential clashes may occur between senior managers and junior managers who engage in higher level strategizing activities. Whereas senior managers have substantial experience with the organizations' history and nature of processes, junior managers may bring new

capabilities, conceptual knowledge and experience from their respective cultures that may be in conflict with the traditional ways of management and business strategizing within the company. Traditionally, the emphasis on world-wide standards and allocation of budgets for IT, and other resources supporting the business, have been in engineering-related functions, manufacturing and operations – less so in functions such as marketing and R&D. Specifically in business development, the core competence of the organization has been the richness of experience of its people.

Whereas product-related information is highly technical and can be codified, the process of competitive strategizing is heavily based on tacit knowledge and managers' social networks. This knowledge includes scientific expertise, operational know-how, insights about customers, business judgment, and technological expertise. For sales managers in particular, articulation in writing is used for formal matters and the rest is person-to-person. There are already inherent problems with knowledge sharing in relation to the tacit nature of knowledge, which cannot be solved by technology and 'best practices' alone. The embedded character of knowledge is hard to capture, store, or transfer (Blackler 1995).

In an attempt to capture at least some parts of this knowledge, literature argues for a culture of sharing as an enabler (DeTienne et al 2004; Alavi & Leidner 2001). While a knowledge sharing culture is best when it grows naturally, it should not be left to chance. Leadership and some top-down initiatives are imperative to guiding the overall attitudes and mindsets of human agents in the organization (DeTienne et al 2004). For example, reinforcing principles of guiding myths and Gnostic rituals driven by some key players in the organization help to enculture open business values (see chapter 3) in organizational members. These, overtime, should expand into a supportive social network, e.g. knowledge workers who share common values and experiences (Morosini 2000). Integrated leadership [researcher's emphasis], is a key element to overcome human barriers associated with knowledge creation, transfer and sharing, for example through cooperative involvement and managing incentives (DeTienne et al 2004).

In the contrary, if there is no culture for sharing, then ICTs will become repositories over time, regardless of their perceived usefulness (Galliers 1991). Documents languish and gather electronic dust because the resources remain unused. Nevertheless, deliberate forms of IS do little for sustainable competitive advantage on their own. The standardization of

processes and commoditization of IS may be at the cost of innovation, flexibility and may limit the bottom-up emergence of ideas (Newell et al 2003). In order to benefit, strategic alignment (Henderson & Venkatraman 1993) advocates claim that there has to be an organization-wide fit between IS and business strategies and processes (Porter & Millar 1985). Like the majority of companies, this has been a challenge at HPC for the past several years.

The ongoing challenges, as we have seen in the case studies, are not only multi-fold, but also sometimes re-enforcing one another. This gets to a point where the actual cause for the problem situation becomes camouflaged in the everyday coping, such that the old problems evolve along with new emerging problems. HPC faced the challenge of IS and business strategy alignment, at least from the outset. While some blamed the lack of a supportive II (i.e. technological aspects of IS) in the everyday decision-making, others blamed differences in thinking that come from different cultures (hence, social-cultural aspects of IS). While managers in the US OU were keen to follow more aggressive strategies in their decisions, German senior managers exercised more caution with higher level of analysis and evaluation, which require many discussions at meetings. US managers, however, would not necessarily choose to spend much time discussing and rather take a trial-and-error approach to test for feasibility (Interviewee 3). Furthermore, the choice of topics to be discussed and their appropriate depth and breadth was evidently different between US and German managers. This led to the perception that meetings were not efficient and sometimes even pointless (Interviewees 1, 5, 8, 11 and 12). A senior project manager at the US OU expressed frustration about having to follow so many rules and comply with bureaucratic processes from headquarters as to how to go about bidding in their home markets. The tight bureaucratic control demanded work processes from business development managers that were not related to their jobs. In many cases, a lot of information is gathered and created, yet a very small fraction of this is used in the strategizing process. Feldman and March (1981) argue for possible reasons other than making decisions for which information may be gathered and used:

- Incentives for mere production, not necessarily for its use; sense of security; information becomes the way to bridge the gap between the rational and 'involved' manager (Introna 1997)
- Information as surveillance; relevance is determined by the context

- Strategic information as a method to persuade someone; basis upon which conflict is resolved.

The rigid policies, in addition to a lack of integrated IS, would foster inefficiency and less productivity in the jobs of the US colleagues, hence making the OU as a whole less efficient.

7.1.1.3 Subsystems

Despite an IS strategy based on socialization, the process of accessing, gathering and putting together documents for competitive bids has been very difficult, especially at the US OU. Differences in management approaches, limited access to the tacit knowledge of senior managers, and the lack of an integrated infrastructure led to the gradual creation of subsystems by teams and individual sales managers. The subsystems consist of electronic repositories of information and knowledge that they consider to be directly relevant to their own projects and day-to-day decisions. These documents contain technical specifications, historic data, marketing information, and especially a repository of personal contacts and details on their personal networks. These documents emerged over the years in response to the need for flexibility and transparency, and as a way to cope with changing business conditions. They help managers to organize information and knowledge in accordance with the manners in which they go about strategizing in competitive bidding processes.

Since these systems have been constructed based on the experience of individual managers and teams, they are highly path-dependent in nature and specific to the creator of the systems. For this reason, they cannot be easily transferred to other members in case the system creator retires or leaves the company. In reference to this, the 'stickiness' of knowledge is specifically discussed in the literature as making the transfer of implicit knowledge difficult (e.g. Szulanski 1996). The competencies produced at one location cannot be easily used in other corporate units' business context because the information was developed within the unique network and interaction of those who created them. Competence development is not only context-specific but also relation-specific (Lane & Lubatkin 1998). The more context-specific the systems are, the more difficult and costly to transfer the knowledge. This means that subsystems (their content and use) are as valuable to the company as they are connected to the individual manager who created them. At the

same time, the subsystems introduce substantial bargaining power not only to specific teams within the subsidiary but also the subsidiary as a whole. On the downside, this has led to potential enhanced political tension among the OUs due to an increased rent-seeking behaviour and internal competition. Last but not least, managers at HPC face a continuous dilemma: the need for streamlining cross-functional knowledge processes as well as a flexible structure. The implementation of an ERP may improve organizational level processes, yet it was expected to introduce restrictions and rigidities that may set limits on the managerial level in the use of subsystems.

7.1.1.4. Conclusions - HPC

The HPC case has been an interesting example of a traditional, well-established company that had been excelling in its product delivery until it fell behind due to globalization and ICT advancements. The management style reflects a philosophy based on long-term relationships rather than a focus on quantity of deals, quick growth and short-term business relations. Socialization has been viewed as the best way of building a knowledge sharing culture and of facilitating a cohesive team environment. This has been facilitated through frequent exchange of knowledge workers between offices, mixing people in teams, brainstorming sessions in meetings, videoconferencing, conference calls, telephone calls, and email. Face-to-face meetings require trips to headquarters and transferring people between offices to consult with senior managers with a view to tapping their experience from past projects. Among senior managers, there is an already established network and social system both inside and outside the organization.

Despite the traditional non-IT approach to information management and knowledge creation, sharing and transfer, the company has been growing and its core competencies have been maintained – thus far. Over time, however, a lack of an enabling II has led to organizational and managerial problems that may have a bearing on the core competencies. Notably, the study of one single subunit might not reveal this problem because they already have established their own work systems and structures around their strategizing approaches; it is in the interaction of the units where IS challenges surface. In order to compensate for the shortcomings in the corporate II, managers constructed their own subsystems as their prime IS strategy. Although the company is now well aware that in the long-term this shortcoming may well lead to loss of control and competitive advantage, it

may also be a lesson that having the most advanced ICTs and IT-led II may not automatically lead to competitive advantage, or more effective management and efficient strategizing.

7.1.2 PCS - Analysis

The case study examines the use of IS strategies by senior managers in decision-making processes in competitive bidding, the area which is most in need of corporate support systems. The findings argue that it is not enough to focus on the level of sophistication of IT or an 'alignment' of IS with business strategies. Rather, due to the unstructured characteristics of strategy and the embeddedness of tacit knowledge in decision- and sense-making, IS should be seen as an integral part of the strategizing work itself). Furthermore, it argues that the managerial capability of an integrative IS mindset in strategizing processes plays a key role in overcoming that 'stickiness' of knowledge such that IS can be leveraged better to meet objectives and overcome organizational hurdles (Szulanski 1996, Jensen & Szulanski 2004). The discussion will suggest a possible integration of IS components proposed by the IS strategizing framework (Galliers & Newell 2003), which already assumes an integrated IS mindset in strategic activities on the part of strategic actors.

7.1.2.1 Strategizing & Information Systems

PCS, a US-based private bank, has many characteristics contrary to HPC. While there are clear objectives set by headquarters, individual branches of the bank are held responsible for meeting sales targets and expanding their business. Advisors have the flexibility to strategize in their own way in an entrepreneurial environment to meet those objectives. Generally, advisors at PCS strategize around providing investment advice and offer standardized solutions based on the company's products. The central focus of advisors is twofold: i) building a channel for high net-worth clients, and (ii) building an open and flexible record-keeping and decision-making platform for improving offerings, CRM, speed-to-market, new products and strategies: 'By the time the products go through compliance and to us to market them it's already too late" (Interviewee 2) .

The corporate IS is centralized, top-down, and aligned with the overall business goals of the business divisions. Here, top-down IS refers to designed IT-driven platforms and

imposed proprietary person-to-document applications which are maintained centrally. There is a rich IT-led information infrastructure (II) providing tools for MIS which are aligned with business operations and strategies. It also focuses on web serves, security, outsourcing and mobility (i.e. Blackberries). For example, some of these are various proprietary IT software and services such as Client Relationship Management (CRM) applications, Supply Chain Management and Human Resource Management Systems, and very specific systems for the purposes of clients' financial assessment, market data analysis, and so on. Client data is the backbone of the MIS and decisions, and hence, there is intense focus on the security of such platforms.

The central II connect hundreds of offices around the world, providing knowledge workers with the latest market updates, proprietary systems, products and access to a worldwide social network. Likewise, the dominant IS strategy is deliberate, or person-to-document, with person-to-person being limited to formal presentations and meetings. Practical knowledge is in its explicit form and codified (cf. Nonaka 1994) for future reuse. The majority of data and information are on the company's Intranet and come from the corporate offices and the company's large research centre, which distributes the latest data and information (e.g. benchmarking data, information regarding prospects, market analysis and forecasting) to the global network of advisors.

Advisors are encouraged to use the IT-led IS strategy to exploit the corporate II on already existing knowledge and solutions in order to achieve scale in knowledge reuse, with a view to growing their business. Generally speaking, junior advisors rely more on the global information platforms and top-down IS than experienced advisors. Documents in the repository are, for example, prospecting sources, business process checklists, different forms of documents for specific needs, as well as various proprietary assessment software that is used to assist the advisor in putting together presentations to prospective clients,(such as marketing material, extensive industry research and analysis, including forecasts).

The structured system fosters a self-organizing environment where knowledge workers access the global network to gather, share, and transfer information, and establish new contacts. One would assume that an IS well aligned with overall business strategies would

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foster an enabling environment for strategizing and decision-making. The findings provide a different picture, however.

In relation to competitive strategizing, despite the comprehensive corporate II and IS, the majority of advisors at PCS had the opinion that the system was not contributing much to their efficiency and job performance. Two reasons were most prevalent among the interviewees:

- Lack of transparency and information overload, combined with difficult-to-find information;
- A perception of diminished returns from what was available in terms of information and IS.

First, many advisors had difficulties finding their way through the maze of information on the II. Particularly, junior advisors were frustrated trying to find specific information in the vast system, given the limited time and even more limited training and mentoring. It was not that the II was not providing meaningful information, on the contrary, the sheer amount of analytical data and information went beyond managerial needs, and sometimes, advisor competencies and ability to judge what they actually needed to know.

While the accumulation of data and information was attributed to the quality of corporate IS, the strategic filtering of key information was attributed to the ability of the manager to judge what is useful based on their personal knowledge about the subject and the context (Interviewees 1, 3, 4 and 10). According to senior advisors, most of what is on the system remains unknown to most advisors, even to senior level advisors (Interviewees 1, 3, 5): 'few people know the sort of information [that's] there [on the Intranet], if they had known, they would probably run their business differently'. Generally speaking, most advisors found it time consuming to find and retrieve new information from the system. As a result, either the job of seeking information was delegated to junior advisors, if a team had any junior advisors on them, or to assistants. In most cases, though, senior advisors did not have junior advisors on the team, and those who did, did not have the time to explain exactly what was needed. A more efficient way was in most cases to refer to the firm's social network which would be just a phone call away (Interviewees 2, 5, 7, 8, 12, 13). Social networking did not prove to be effective on a consistent basis, though, for different reasons depending on the position of the advisor (i.e. VP or junior analyst). It was difficult

to find the right people with the right kind of knowledge (Interviewee 7). Specifically, in trying to find an expert outside their own core business, they felt that 'another world of people networks opens up which gets very confusing', if there is no direct referral (Interviewees 5 and 7).

A number of advisors described that learning the shortcuts to finding the right information would be a 'job in its own right' (Interviewees 5, 7, 9). One interviewee, a senior advisor on the A-Team, revealed that the reason he had been more efficient than other advisors was because he knew more shortcuts to access information in the system than others. Others who had been working at that office for over 10 years had not yet worked with the majority of the available IS and proprietary systems - and investing time to learn how to efficiently use the systems was not a top priority.

Second, in contrast to the intention of centralized information systems (e.g., to support decisions and strategies through data, information and experts' knowledge), it was found that the sheer availability of data and information to all advisors and employees simultaneously would diminish the perceived value of the IS as a competitive source which would differentiate the team's strategies from others. This perception led most advisors, especially those who had become conscious of the perceived shortcomings of the II, to limit their use of corporate systems and construct their own private subsystems. The perception that 'there is information already out there for everybody' – regardless of how much of it is actually known – had created an attitude that it must not be valuable if it is already there. It must be noted that this observation relates to senior advisors who have been with the company for a number of years and have been pursuing their business aggressively. For example, this was prevalent among two teams that were relatively more successful in their business development performance than the rest of the teams at the office under study. There is recorded evidence that relates the degree of IT centralization to its contribution to business value. For example, Capella (2006) argues that the right amount of IT centralization adds business value, but too much throws off the balance between efficiency and responsiveness, leading to diminishing return of ICTs.

Many advisors were seen to use the Web-based customer relationship management (CRM) application, *Salesforce.com*. This system - an IT-enabled information sharing and management platform – can be easily integrated into the corporate IS and customized by each user.

Among many functions, the platform allows teams to create, share, store and manage information about clients. The teams who used this system expressed their satisfaction with it. However, upon tracking the actual use of the system over three months, it was noted that information was not regularly updated. Since the majority of advisors already had their private files on clients, the use of such shared systems was not common or seen to be urgent. This implies that the limited use of any centralized and standardized IT system, whether internal or external, is indicative of the need for flexibility and the fact that what is provided by IT systems is data, not knowledge (Galliers & Newell, 2003). In order to meet their knowledge needs, advisors engaged in intense social networking.

Social systems include the expanded network of experts within and outside of the firm who are sources of information and points of contact for further referrals. The link to this social circle is based on mutual trust, where the strength of the relationship is bound to the circumstances under which it was initiated, and to the nature of business relations. It is the relationship between the advisor and the social network that is valuable, not necessarily recorded information about the relationships on a computer system. This implies that the social networking links on II subsystems are valuable as long as they are in the hands of the advisor (or their trusted team). This makes the transferability of the subsystem from one advisor to another difficult, given that it is person, time and context specific – 'sticky' to use Suzlanski's (1996) term once again.

7.1.2.2 Information Systems Approach of the A-Team

At PCS, working in teams allowed advisors to leverage their expanded network and collective knowledge. However, most teams at PCS seemed to either overly depend on corporate IS resources as the primary source, or on their subsystems, which did not always have the quality of knowledge, information and social networks necessary to support their strategies sufficiently. During the study, this point was observed in a team consisting of experienced advisors who pursued an aggressive strategy for business development in their respective region. Their strategy was reflective of the new goals of the company for fast and services-oriented expansion rather than the traditional transaction-based focus of the business and slower growth. The team conveyed two characteristics that contributed to their high level success in devising and executing their competitive strategies: first, each member possessed their individual subsystems which they maintained in isolation. They

were not shared within the team, but they were a basis on which each advisor informed him/herself prior to personal conversations with team members. The subsystems were organically grown, path-dependent information and knowledge, captured over several years according to the career track and performance of each advisor. The subsystems were meant to accomplish the following:

- Consolidate information, knowledge and social networks from corporate resources in organized manners in order to access and exploit them more efficiently;
- Provide flexibility in incorporating changes into strategy processes.

They were heavily reliant on experience-based tacit knowledge on internal and external matters. The subsystems were not expected to be shared, as each advisor had their own way of collecting and organizing relevant information and knowledge, and their own way of giving meaning to the information that had been gathered (cf., Checkland 1981).

Notwithstanding, there was an evident 'open business value' culture (Morosini 2000) and open knowledge sharing attitude in the A-team. From initial observations and interviews it became evident that most of the success of the team was due to an enabling social network they had created amongst themselves over the years. This network of experts, consisting of trusted members across several functions and core businesses, provided access to relevant information. Direct communication among them took place through continuous emails and several hours of phone calls each day. Since the chosen IS strategy depends on the level of abstraction of that information and knowledge which is shared, multiple sources were used in an intermingled way in communicating critical information. The reliance on corporate IS, or on a document-to-person strategy, was most useful as it provided objective data and information with the exclusion of 'unnecessary noise' (interviewees 1, 2). The subsystems gave advisors the flexibility to exploit corporate systems and explore new opportunities through the network of experts in an intermingled manner while being involved in the strategizing work. They did not view IT or an IS strategy as a separate entity to be used, but rather applied various forms of top-down and bottom-up IS across a wide range of strategizing practices as the need emerged. The knowledge sharing mindset allowed each advisor to be efficient with their time, to make decisions quickly, and to act on them before their competitors – both inside and outside the firm.

PCS emphasizes speed, 'doing', and efficiency in decision-making. Advisors were clearly operating from a mindset which was performance- and reward-driven. At the centre of their focus was building new channels for high net-worth customers. At the same time, there was a need for a flexible and efficient IS strategy to keep records and manage a platform of clients and their status (not just their financial information, but also their life history, needs, and future plans). Where the strategy process could have been supported by the corporate information and social system, it was up to the strategic actors to make the most use of the availability of IS resources and the ways in which various tools could be combined. The ways in which information and knowledge were exchanged and put into action fluctuated highly with the type of the client (as to their size and goals, expectations, level of difficulty or ease to work with, etc), the time of the year, the status of the markets, and so on. These are some of the factors that determine the level of aggressiveness and the use of IS accordingly.

Generally, the more aggressive advisors were about winning a case, the greater the reliance on tacit knowledge of experienced members within the teams rather than on the corporate social network or other forms of top-down IS. Only a small portion of the vast amount of information held in the corporate II was used by experienced advisors. A senior advisor mentioned that the marketing book 'is not as important as the gut feeling they will get of me' (Interviewee 1). Personal contacts were kept brief and effective, in line with the 'I've got it all under control' culture. Subsystems helped advisors to create personal knowledge repositories through continuous path-dependent learning and competence building, making them efficient as individuals and effective in teams. The combination of subsystems and social networks provided a strong basis upon which the observed advisors had the tools to develop and execute strategies.

7.1.3   Reflecting on Both Cases

Overall, both case companies provided products and services requiring similar managerial capabilities in competitive strategizing. The core competences lay in services (e.g. managerial, commercial, technical marketing and decision-making capabilities). At both companies, strategizing processes were highly dependent on human-network-based IS and

knowledge sharing. At HPC, project coordination was necessary in the strategizing process and communication as to how best meet new customers' technical specifications and commercial demands. At PCS, mutual adjustment and reciprocal communication were essential in order to stay on the same page during devising and execution of strategies.

PCS is an advocate of MIS and the strategic influence of IS on operational activities. Its top-down centrally controlled and IT-rich IIs provide IS and MIS, which are aligned with business strategies. However, a supporting social system and a knowledge sharing culture are lacking. In addition, the vast amount of person-to-document resources were found to be overwhelming and seemed to have led to diminishing returns among senior advisors rather than to greater efficiency. At HPC, social networks were the dominant form of IS, primarily because of a lack of IT-based IIs. However, the growing size of the company and the accumulated know-how of a multi-cultural management made knowledge sharing, exchange and transfer ineffective. Cross-cultural differences made consensus building challenging, which were indicated by frequent misinterpretation of information, and frustration between the German and US colleagues. Furthermore, the top-down strategizing approach dictated by headquarters, tight control mechanisms and lack of enabling IIs widened the cross-cultural and political gap among the two major units. Much inefficiency in organizational processes affected the work of managers and the successful use of already existing resources.

The research implies that IS were as useful in strategizing as strategic actors were willing and capable of making them useful: 'ICT tools are as good as the people using them' (Interviewee 12). The rich IT-enabled data and information platforms at PCS were only useful to the users who had learned how to work the system such that when the need arose to extract relevant data and information, they would do so swiftly. Considering that advisors received no training and were under time pressure to grow their businesses, there was little time to explore the possibilities that the socio-technical II may have provided to improve their performance. A similar case with social knowledge networks: Advisors had access to a network of thousands of employees worldwide through the person-to-document social system. However, this avenue was used marginally because, according to an advisor (Interviewee 7), 'often it's difficult to get hold of the right persons who can actually help you … don't get me wrong, everybody wants to help, but not everyone knows what you want to know... so finding the right person takes time – if you get lucky.

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Sometimes it's not worth the time although it might pay off if you persist.' (This concern was echoed by Interviewees 1, 4, 5, 9, 12.)

The case studies revealed that leveraging information and knowledge for effective decision-making requires an integrated and interactive approach, whereby ICTs may act as a powerful facilitator if used in a congruent and integrative manner within strategizing processes, thus reflecting the socio-technical nature of the IS strategizing framework (Galliers & Newell 2003). When teams work together, they are part of the wider organizational context as they coordinate various elements involved in putting together a competitive business case. At HPC, teams are essential to tapping into the tacit knowledge of senior managers (as the primary source of organizational memory). The majority of senior managers are German and have been with the company for over 30 years. Notably, the approach to strategizing is also predominantly German, despite the global presence of the company. HPC did not find IT-based IS strategies as effective ways to communicate when it came to decisions that depended on the accuracy of that communication. Frustration and lags in decision-making were usually a result of not being able to communicate face-to-face with colleagues around the world.

Main frustrations arose around a perceived cultural gap when they participated in meetings to build a business case: 'We speak the same language, but aren't communicating' (Interviewees 2, 8, 12, 13). A main goal was to reduce the socio-cultural distance between the knowledge workers such that they could communicate more effectively long-distance in the future. As part of the social networking strategy, HPC exchanged managers among US and German OUs to encourage the development of contextual problem recognition and solving, and participate in collective sharing. However, each knowledge worker had already developed deep and specialized knowledge in their particular area of expertise. Although all managers have an engineering background, the knowledge structures in their respective areas had become highly individualized, task- and relationship-specific. This is where the drift towards managerial systems seemed to have happened.

Due to structural and managerial inflexibilities, most managers constructed subsystems to support strategizing processes on an individual basis. With this attempt, management seems to have shifted towards an opportunistic attitude and as a way to incorporating continuous changes from the environments into their strategizing. On this note, Ciborra

(2001) argues this shift from centralized IT platforms towards less formal and more flexible systems as drift. In both cases, the content of subsystems was generated organically through path-dependent learning (Cohen & Levinthal 1990). The type of knowledge that was most valuable was that which could not be 'captured' or 'codified', but shared and understood through social interaction (Kogut & Zander 1992) and sense-making (Weick 1995; Wilson 2003). This level of embeddedness of know-how made sharing difficult even through extensive interaction between group members. This is in line with the nature of strategizing which involved both approaches at the same time (top-down and bottom-up); IS were used in a congruent manner.

In both cases, managers/advisors drifted from the corporate systems towards constructing executive (or individualized) subsystems which would meet the needs for efficiency and flexibility. Subsystems emerged as a result of the:

- Need for flexibility as well as efficiency
- Limited or lack of transparency and knowledge sharing culture – regardless of a centralized or decentralized IS strategy
- Widely dispersed managerial competences and relationships (e.g. Teece 1992) and the need to integrate them
- Need to incorporate change fast
- Need to safeguard personal knowledge from already existing cultural and political tensions.

Deliberate and emergent forms of IS were used in ambidextrous ways of strategizing, such that IS were integrated within the business strategizing process rather than as a separate tool. Here, ambidextrous means the skilful handling of multiple tasks simultaneously. Specifically, these tasks refer to the ways in which available resources are exploited while at the same time new possibilities are explored, new knowledge is created and new connections are made in the organizational and collaborative business networks. The concept of ambidextrous organization is postulated by Tushman and O'Reilly (1996) to address the organizational challenge to gain efficiency and innovation simultaneously. This concept is relevant in the use IS in strategizing. It is further related to the findings in section 7.2.

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Furthermore, multiple conflicts of interest seemed to have contributed to a drift from top-down systems towards improvisation and tinkering (e.g. Ciborra 1994; 2002). The drift towards dispersed subsystems not only limited the reliance of users on the wider corporate IS but also created a 'them and us' mentality, fostering a culture which resisted knowledge sharing and organizational learning (cf. Senge 1990). A senior advisor at PCS explained that although the effort towards the new competitive strategy (i.e. expanding the ATeam across subsidiaries) was a strategic decision, as long as there was no coherent culture and the social and organizational infrastructure to act in an integrative manner, many of the efforts would not come to fruition. This environment was not allowing the consistent leveraging of the 'knowledge links' between teams that was required in what were vast projects (Badaracco 1991). Below is an illustration of the arguments which will be further discussed in the rest of the chapter.

| Section 7.3 Main argument
Organizational Challenge:
Unintended consequences of subsystems

- Disintegration between organization-wide and managerial knowledge-base,

- Affecting ongoing collective learning and organizational memory overtime | **(A)**
Organizational Socio-Technical Context

7.3   7.2
Strategic Actors

(B)
Mixed use of D/E IS:
creation of Subsystems | Section 7.2 Main argument
Managerial Advantage:

Strategic actors as part of the organizational context using deliberate (D) <u>and</u> emergent (E) IS in the form of managerial subsystems. Arguing for:

- Ambidextrous IS strategizing
- Situated involvement of strategic actors
- Information, knowledge and systems become immanent to strategizing processes
- Suggesting an integrative IS mindset, which is immanent to the strategizing process |

Figure 7.2: Structure of the arguments (clock-wise)

In the figure above, the link A to B indicates a drift from formal organizational II towards integrated use of deliberate & emergent IS on the managerial level, which led to the creation and use of subsystems for the sake of efficiency and flexibility in strategizing. Section 7.2 will argue that this drift is due to the ambidextrous nature of strategizing, which led managers to construct subsystems which met the flexibility and efficiency needs on the personal level.

The link B to A, on the other hand, indicates how subsystems may affect the organizational system and infrastructure as a whole. This research identified problems of information and knowledge sharing and transfer at HPC and PCS which were associated with the use of subsystems. It will be argued that these may have inhibited ongoing learning (OL) on the organizational level and hence the organization's memory (OM). The next section reflects on the literature introduced earlier in the dissertation, with a view to relate the findings to extant theory.

7.2 INFORMATION SYSTEMS IN STRATEGIZING

'Management is rooted in tacit knowledge at least as much as in explicit knowledge, which means that much of it cannot be codified and taught formally, Management training aside'
-Mintzberg (2001)

The initial analysis in the first section elaborated the rather obvious reason for the existence of subsystems, which was discussed to be the need for flexible IS to facilitate efficient ways of working. This section unfolds the findings to explain why subsystems emerged and what our interpretation means to the IS strategizing framework. The interpretation will reveal that subsystems are a result of for ambidextrous IS strategizing with an already integrated IS mindset. Specifically, the ways in which IS were used at the case companies will be attributed to underlying assumptions of the involved manager (Introna 1997). This particular ontology will serve as a complementary lens to provide further distinctions of the parts which make up a richer whole.
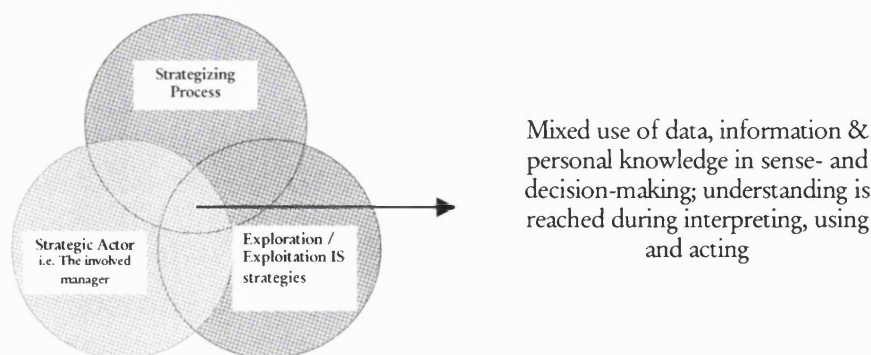
Figure 7.3: Representation of the findings and basis for interpretation: strategizing, IS and human agents are parts of the same involvement whole

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The interpretation is based on the following arguments:

- IS are not separate but immanent to the ambidextrous ways of strategizing
- the use of IS itself is ambidextrous
- we attribute this ambidextrous strategizing to strategic actors' natural working processes as being an integrated part of the strategies and strategizing process itself, where IS are used as extensions of human agents' thinking and acting in the world.

Implications of this argument to the IS strategizing framework will be:

- a reconciliation of the deliberate and emergent IS strategies as ambidextrous and as:
- integrated in the strategizing process itself because of (iii) the involved mindset of the manager in the process

But first, let us revisit the context in which IS and the human agent are considered.

7.2.1. Decision-Making and Information Systems

Decision-making processes rarely happen on a one-time basis in a meeting room with all strategic actors. Strategic actors in this study were senior managers and advisors with substantial experience. Strategic decision theory describes the role of executives as organizing, coordinating, commanding, and controlling agents (Fayol 1949). As a result of increasing dispersion of knowledge workers and knowledge resources, however, the role of managers in strategizing has become even more elusive. The expertise in multinational, knowledge-intensive firms overlaps in complex and shifting ways, where business developers have to assemble knowledge from cross-functional areas, often including communication with foreign subsidiaries. Here, IS become significant.

IS are highly contextual and depend on the user and the purpose of their reuse (Markus 2001). At PCS, competitive strategies are devised and executed in an entrepreneurial environment. The firm's II is heavily based on IT applications and a person-to-document IS strategy. The knowledge that is found in these applications is explicit, embedded in procedures, documents and databases, and can be transferred with reasonable accuracy. Specifically, most of this explicit knowledge can be referred to as 'knowledge of rationality'

(Nonaka 1994). Knowledge of rationality is formed through formal education and training to obtain certified qualifications, and is associated with standardized knowledge, which is applicable to different contexts. This is in line with developing a 'best practice' of a profession which is generic, highly rationalized, and internally coherent, and which is context free and easily transferable (Walsham 2001). However, it is the experience-based tacit knowledge that has competitive value to the strategizing process. In both case companies, managers/advisors did not make a distinction between information and 'codifiable' knowledge per se. At PCS, as well as HPC, knowledge was synonymous with experience, embedded in the minds of senior managers who have been with the company for a long time.

The controversy with knowledge is that its ambiguous nature makes its processing (sense-making and sense-giving) complicated (Weick 1995; Wilson 2003). Polanyi (1966) and Nelson and Winter (1982) remind us that a large part of human knowledge is context bound, highly firm specific and tacit in nature – hence these set limits to which it can be effectively articulated and transferred. The way this 'tacit' knowledge is organized, used, and coordinated is task-specific and individually-based (Lam 1997). With operational skills or know-how, learning is achieved through practical experience and observation, rather than formal learning (Lam 1997). This learned knowledge is organized around a set of rules and a myriad of relationships specific to the situation of that firm and its organizational memory (OM). The meaning given to the knowledge depends on its context-specificity and personal interpretation of the human agent from different cultural views (unconscious factors) or personal incentives (conscious factors) (Holsapple & Joshi 2001; Hansen et al 1999; Walsham 1993).

Barley (1996) refers to this as 'the distributive nature of contextual knowledge' within communities of practice (e.g. Lave & Wenger 1991), where knowledge-in-use is embedded in specific routines and operating procedures shared by members with common experience and values. When it comes to knowledge sharing, knowledge workers are not able to give an explicit explanation of the procedure and rules due to the underlying tacitness of that knowledge. Chapter 3 outlined the process of externalization and socialization as strategies to communicate knowledge (Nonaka & Takeuchi 1995). This argument, however, has faced considerable controversy due to a possible misinterpretation of the nature of tacit knowledge (Wilson 2003), which inherently is not communicable. Agor (1986) and

Scharmer (2001) take the matter deeper and argue that decision makers often rely on intuition when there is a high level of uncertainty, such as when facts are limited, ambiguous or incongruent with events, when variables are not scientifically predictable, when time is limited, when several alternatives seem plausible, and when the cost of failure is large. Recognizing the value of experienced-based intuition in decision environments, situational factors compel managers to focus more on this ability (Agor 1986; Behling & Eckel 1991; Wally & Baum 1994).

Given the diversity of information and knowledge, organizational systems and their socially embedded nature (Lam 1997), it is no wonder that knowledge workers experience problems in synthesizing these into a meaning that they can apply in their strategizing, specifically across cultures and functions. One may look at the incompatibility in knowledge structures and work systems in addressing the problem. The next sections reflect on such problems. We speculate that the aim to improve sense-making in strategizing and managing ambiguous information and knowledge led strategic actors to construct systems through which they may be able to better manage and control unexpected events. A PCS senior advisor states: 'Change is inevitable and you've got to think ahead of everybody else ... there's little time for searching [for information] ...' (Interviewee 1). The attitude called for systems which would be rich in relevant information, and easy-to-use, such that advisors could integrated such systems as carriers of information and (explicit) knowledge into their sense-making process which happens outside of the formal meetings. Such systems needed to be especially flexible such that they can be updated quickly to accommodate continuous changes from the external environments as well as the continuous development of the manger's personal knowledge. At this point we may remind the reader that most advisors did not like to admit that their work involved improvisation, or any action that had to do with the reactionary-mode of being. However, observation of the day to day working processes showed that while deliberation could be seen in moments in time (i.e. in a snapshot, or episodic), when a course of decision process was followed, the process was guided by informed improvisation, tinkering, frustration and battling contradictions in on various levels of the organization.

We can imply that the self-constructed subsystems, as a form of IS, were interwoven into the strategizing processes such that these would support the process of improvisation and

tinkering in a way where improvisation became withdrawn from the immediate consciousness/awareness of the manager, hence giving advisors the perception that they are acting from a point of deliberation and top-down intentions. This way, managers could keep focusing on their target goal while unconsciously let themselves be guided by their subsystems. Subsystems can be seen as vehicles which would make the muddling through and irrational micro-level decisions and actions of managers seem disappear, such that advisors can maintain the rational executive image, who is all knowing and in control of the processes. There have been studies on understanding the link between how senior managers make sense of information and how they act to influence organizational outcomes (Weick 1995; Nystrom & Starbuck 1984). The way knowledge is interpreted, used and shared is subject to a mix of interrelated dynamics that shape human perception and the way meaning is created.

As introduced in chapter 2, Daft and Weick (1984) and Milliken and Lant (1990) argue that sense-making comprises scanning, interpreting and responding. Scanning refers to searching the external environment to identify important elements and gather information. Some of the environmental forces are competitors' products, services and workforce of specialized skills, customers, technological capabilities, level of government influence, etc. Scanning and filtering the critical information is a crucial and time consuming process, as top decision makers typically have access to far more information than they can actually use (Mintzberg 1975) and need to select critical information specific to developing and interpreting strategic issues (Daft & Huber 1987). Hence, many decision makers usually scan according to their perceptions of the necessity for information.

The differences in sense-making are significant to successful social networking in strategizing. For example, as some managers regard a strategic issue as an 'opportunity', others may consider it as a 'threat' (Dutton & Ducan 1987). Jackson and Dutton (1988) discuss three dimensions that differentiate the interpretation labels: whether decision makers evaluate an issue in positive or negative terms, whether they see it as representing potential gain or loss for their organization, and whether they see it as controllable or uncontrollable (Thomas et al. 1993). Nevertheless, the ways in which the world is interpreted and made sense of determines the logic behind strategizing and so the ways in which information and knowledge are used. In the two cases, subsystems were used as predominant IS, which consisted of the accumulation and integration of relevant data and

information from various sources (e.g. formal corporate IS and informal social networks) into their personal knowledge over the course of their involvement with the organization. This way, strategic actors were able to work efficiently with considerably flexibility at their own discretion.

From a holistic IS perspective, we take the opportunity to reflect on the definition of strategizing as 'consistent pattern in a stream of actions' (Mintzberg 1978) and argue that subsystems emerged as a consequence of spontaneous human actions rather than human designs, or as an 'unintended order', which appeared in the absence of deliberate intentions (Mintzberg & Waters 1985: 271). While there was little 'intention' to develop separate systems, a consistent pattern of actions emerged in the process of knowledge sharing, sense making, and decision making that were distinct from other forms of organizational IS and activities. In the next section, we elaborate more specifically on the form of IS identified in strategizing.

7.2.2 Ambidextrous Information Systems and Business Strategizing

Hansen et al. (1999) argue that companies should focus on either strategy to manage information and knowledge, personalization or codification strategy, and using the other as a support. Likewise, from an outside-in perspective, we noticed that HPC seemed to rely predominantly on a personalisation strategy. As a pioneer in hydro power engineering, most knowledge of HPC was in the heads of senior managers and not systematically integrated into the wider II such that other managers could benefit from this wealth of experience. Ways to share and transfer such know-how were heavily person-to-person oriented, resembling the 'bottom-up' IS strategy which was not necessarily supported by a common corporate culture. On the contrary, PCS by nature revealed a predominant codification strategy in how the IS was structured around work processes (or vice versa). Despite a sophisticated IT-based global II, senior advisors stated that the highly centralized and structured II and person-to-document IS was 'inefficient', 'time-consuming' and 'not transparent' in terms of finding key information quickly which are already adjusted to the changing context.

A closer examination of the two cases revealed that neither adhered more to one strategy than the other. On the contrary, the presence of subsystems suggests that in practice,

managers/advisors used both approaches in an integrative manner to managing information and knowledge. More specifically, the manners in which information and knowledge were used via IS were reflective of the manners in which actors engaged in the process of competitive strategizing itself. The manners in which they gathered and processed information and knowledge from sources characterised by exploitation and exploration IS took places in an intermingled and ambidextrous fashion.

The notion of ambidexterity has been used in the strategic management literature, where O'Reilly and Tushman (2004), as indicated earlier, postulated the notion of 'ambidextrous organization' (also He & Wong, 2004) to suggest ways in which organizations may create competitive advantage through tightly integrated units at the senior management level, where they can simultaneously engage in radical innovations while protecting their traditional businesses. The underlying assumptions of this notion are based on the exploration and exploration strategies. As illustrated in chapters 2 and 3, the conceptual distinction between exploration and exploitation has been used as an analytical construct in a wide range of research areas, including strategic management (Mintzberg & Waters 1985; Winter & Szulanski 2001), organization theory (e.g. Van den Bosch & Van Wijk 2001).

Research in various areas has shown that each of these requires different structures, strategies, processes, cultures and capabilities. While the former is associated with improvisation, organic structures and loosely coupled systems, and emerging technologies, the latter is associated with mechanistic structures, path dependence, control and bureaucracy, and stable technologies. Furthermore, the exploration aspects of strategizing are also associated with situated learning and drift against control (Ciborra 2000). The illustration below suggests an integration of the two IS strategizing components in the spirit of ambidextrous IS strategizing:

Collaborative Business Strategy

Collaborative and
Competitive
Environment

INFORMATION
INFRASTRUCTURE STRATEGY

Socio-technical context
- IT, standards, data, architecture
- Information services (sourcing)
- Human resources (skills, roles)

EXPLOITATION
STRATEGY

(Deliberate)
- Codified 'solutions'
- Standardized procedures
- 'Knowledge Management'

Ambidextrous IS strategizing

EXPLORATION
STRATEGY (Emergent)

- Communities of practice
  Flexible project teams
- Knowledge brokers, sharing,
  and creation
- bricolage/tinkering

CHANGE
MANAGEMENT

STRATEGY

ON-GOING LEARNING &
REVIEW

Figure 7.4: Suggesting link between the two forms of IS strategies (also Galliers 2007)

Interestingly, managers could not explicitly identify where their top-down and bottom-up IS strategies lied. Strategizing processes could be described as ambidextrous in that strategic actors found themselves occupied with coping with micro-level challenges while at the same time exploiting already established structures and systems. Managers/advisors in the cases found themselves in the muddling through (cf. Lindblom 1959, 1979) of the daily work - not because they chose to, but because that is how things turned out to be (Interviewees 1, 6, 12, 12 - PCS). These things are, for example, unexpected outcomes of events, where managers were forced to improvise and re-evaluate the parameters of an original intention. Experienced managers/advisors (in contrast to less experienced managers) tended to incorporate the possibility of things going wrong into their time-line (Interviewees 1 and 6 – PCS). The process of incorporating these possibilities was rather a mindset, or an attitude, which seemed embodied in the natural ways of thinking, deciding and acting. This attitude resembles an ambidextrous manner towards strategizing, where human agents juggle information based on old certainties and those based on future uncertainties in continuously changing contexts.

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The need to be prepared and act (in an ambidextrous manner) raised the need to foster a flexible structure around change and disorder in order to meet emerging needs on a daily basis. The ambidextrous manners relate to the use of IS directed towards simultaneously exploiting organizational resources and exploring new knowledge links and business opportunities. In this way, knowledge workers have various forms of IS at hand which they find themselves using as part of strategizing processes. For example, while senior managers/advisors needed to retain current customers and clients, they were at the same time involved in aggressive expansion of their businesses. Furthermore, the process of client penetration and acquisitions at HPC and PCS was based heavily on building trusting relationships and effective social networking (Sambamurthy & Jarvenpaa 2002; Davenport & Prusak 1998). The process was often prone to many unforeseeable elements. For example, it was not unusual for prospective clients to change their minds shortly before they closed an agreement with their advisor, or signed an agreement with HPC. For this reason, managers/advisors needed to be prepared to meet unexpected events and incorporate changes in their long-term strategizing processes. Change is an inevitable part of strategizing (e.g. high level of turnover, new structured products being introduced, and the changing working dynamics among subsidiaries and their respective directors). This is where suitable IS become key to managers' decision-making processes. According to Interviewee 9 at PCS: 'We've been in this business before most of our competitors ... but the nature of competition has changed... we can't wait for customers to knock at our doors anymore ... you've got to have a strategy and the tools to stay ahead.'

As one requires a system that supports a stable and predictable rate of growth in client retention, the other calls for flexible systems to be prepared to act in an informed manner while the environment and client expectations change. This meant a different kind of IS to support both goals simultaneously, in other words, a mix of IS in deliberate and emergent forms was crucial in gathering critical information and incorporating them from the organizational and external sources more efficiently. Furthermore, growing the business calls for cross-cultural and cross-functional communication, introducing organizational challenges in addition to external competition. The subsystems can be explained on the basis of the need to be efficient and flexible on their own terms, to have IS which would enable a work structure around ambidexterity that is flexible and efficient. These subsystems were an integral part of the strategizing process. For those who used such subsystems well, these were a major source of competitive advantage where they were able

to rest on distinctive processes and path-dependent knowledge cues gathered by coordinating and combining information and knowledge. Also, these would put them in a privileged position in their team, enhancing their bargaining power with outside clients and internal organizational hierarchy.

7.2.2.1 Revisiting the Practice

The traditional view of IS management has been project-based rather than IT portfolio-based (Tinaikar 2006). One may think of each project in a portfolio separately, but it is the synergistic combination of the overall portfolio that creates business value in the long run. A traditional IT-business alignment model, for example, may constrain innovation because it looks at technology in terms of exploiting IS to reduce costs, as opposed to combining it with an innovative and open mindset to search for possibilities beyond the capability of the IS itself. Tinaikar (2006) argues that IS should be less about the role of an IT function, but rather should permeate the organization, embracing the organization and its knowledge workers more broadly. Perhaps due to this project-based mentality of introducing MIS to advisors across the firm, senior advisors who already had an established platform did not see a fit between the new IT and their IS portfolio (this being the various parts of the subsystems). Instead, advisors were continuously integrating the most relevant management information (MI) and synthesized them with continuously developing personal knowledge.

The purposes of these were multi-fold. On the one hand, the always present subsystems created the perception that advisors are 'better prepared' to face unforeseeable circumstances in some of the political gaming with internal and external competitors bidding for the same prospective client (Interviewee 1, PCS). On the other hand, while the PCS continuous introduced high-level IT-based data management and analytical tools, advisors most of the time adopted the idea from these systems as to how to manage and use their client information for certain purposes instead of adopting the IT as a tool. This would save them the time to learn and manage the systems itself. Most often, they would say: 'this [an newly introduced IT tool by the company] is good but not for me' (Interviewees 1, 6 and 9), but in the process, they would incorporate the idea or the format of the systems into their own subsystems in the form of an excel sheet, for example, or creating a roadmap through which they could navigate the corporate portals.

Hence, the assumption that one IS strategy brings more effectiveness than another is rather normative. In the A-Team, while each individual had their own systems, they worked in a cooperative manner. Hence, it was important that the mindsets of all members were aligned with one another such that when they met in person, there was no hesitation in sharing information and then IS and ways in which these were used would become embodied in the process of sharing and appropriated accordingly. This team was further led by a few determined leaders who reinforced a culture of team-performance and rewarded those who mastered the retention of current and acquisition of new clients. At PCS, the A-Team was self-organized but yet dependent on one another as a whole. The combination of using personal knowledge with corporate IS made it one of the most successful advisory teams at the US-based firm.

While recognizing that any interpretation of research such as this is highly context specific, the notion of ambidexterity (Tushman & O'Reilly 1996) seems appropriate in explaining the manners in which IS were used in strategizing in our two cases. As for the interviewees, the subsystems seemed to provide them with a flexible and personal platform, which consisted of information and knowledge cues specific to their context, time, space, relationships, mindsets, incentives, and personal experience. This way, IS were not used as a tool to support a decision, but were already integrated in the whole sense-making process as managers/advisors moved through the up and down phases of strategizing processes in the socio-technical and political organizations. These may not have been a matter of choice, but a matter of dealing with uncertainties and constant flux inherent to the strategizing work. In this light, subsystems may be conceived as reflections of the specific attitudes and management practices of strategic actors encapsulated in the form of management IS, rather than a MIS which serve the making or execution of a strategy. In this light, we argue that the ambidextrous use of IS essentially goes back to the user, the human agent, who uses IS in such a way as to achieving flexibility and efficiency simultaneously. The interpretation of the 'who' will serve us to better explain the ambidextrous phenomenon better. Two alternative perspectives on the human agency will be argued. The first perspective is rooted in the strategic management literature and is in line with the work of Gosling and Mintzberg (2003) on managerial mindsets as outlined in chapter 2. Within this argument, Tinaikar (2006) acknowledges that managers who leverage IS well share certain attributes stemming from an integrative IS mind-set. The second argument will refer to the conceptualization of human agency by Introna (1997), which is

based on Heideggerian ontology. The next section expands on these two perspectives to interpret the 'who' (the strategic actor) in order to better explain the 'why' (use of subsystems) behind the already identified 'how' (ambidextrous IS strategizing).

7.2.3 Strategic Actors

Thus far, we have seen that the unpredictable and unstructured nature of strategizing led managers to use IS in a similar manner. Then we argued that in order to be in control of these processes, strategic actors constructed subsystems which would give them a platform to exploit corporate resources and explore new ones, and so remain responsiveness to change. Now, it has not been clear whether these subsystems were deliberately constructed with the 'intent' to create separate executive IS, or whether these have been a result of an unintended, unconscious 'drift' while managers were concerned with the everyday coping. Thus far, we have assumed a little of both, but it is still not clear. Most academic research which explores various IS strategies often assume that the human agent is consciously aware of strategies in choosing a particular approach to getting the job done. This provides the opportunity to address two contrasting arguments:

1. The top-down or bottom-up argument, where we imply that strategic actors either:

    - Deliberately constructed strategic subsystems to exploit them in times of uncertainty, or
    - Subsystems emerged out of the need to fill in the gap of that which was missing on the organizational level, e.g. person-to-person or person-to-document knowledge platform (Hansen et al 1999).

2. Arguing that subsystems already existed in the everyday coping and strategizing of managers (Introna 1997), but they were not as explicit to the managers' awareness as during times when the organizational II failed to meet their needs. Subsystems always already existed, but were perceived as withdrawn until they were made explicit (ibid). Managers made sense of ambiguous situations by using their personal support systems as part of thinking which contained information in their specific sense-making language.

The consideration of different ontological perspectives (which we argue below are complementary to one another) helps explain possible discrepancies between responses in interviews, where actors spoke of the *idea* of strategy and IS, and between observation and informal conversations during the action of the strategizing processes, where the actual use of IS (not the idea of it) was observed. There was the perception by the interviewer that interviewees had a strong inclination to come across as rational and being-in-control strategic actors, who post-constructed a rational reality from recollection of past actions and decisions. This was particularly revealing at PCS, where the corporate culture encouraged an analytical mindset and deliberate actions. The remainder of the discussion is in relation to these arguments.

The consideration of the human agency as decision-makers is significant in this context because they form a major part of the dynamic organizational system. The underlying assumptions of the first argument are based in the knowledge-based view of the firm (Grant 1991, 1996), where human agents are knowledge assets who are capable of creating strategic advantage through some strategy. These strategic actors continually learn about shifting business conditions and balance what is desired and what is feasible in accordance with organizational requirements and their managerial competence. Managerial competency may be defined as a collective ability of managers to lead and organization's competence building by sustaining their own coordinated deployments of managerial resources, managerial knowledge, and managerial capabilities in ways as to help their organization achieve its near-and long-term goals (Sanchez & Heene 1997). This perspective understands managers as rational human beings who are aware of their choices and can learn certain capabilities to exploit them in the future and reach their objective. The underlying assumption is that intentionality is accepted as a top-down and deliberate phenomenon (Introna 1997). This argument is in line with the literature which advocates strategic IS (SIS) (see chapter 3) and the topic of strategic alignment of IS and business strategies (Henderson & Venkatraman 1993; Sabherwal & Chan 2001; Kearns & Lederer 2000).

Gosling and Mintzberg (2003) propose that the manners in which managers engage in decision making is ultimately a mindset issue. They suggest a work structure that would encourage synthesis rather than separation, where they base their argument on five aspects of the managerial mindset outlined in chapter 2. Here, Gosling and Mintzberg propose that

managers should e a balance between action and reflection mindsets in order to function at the point where reflective thinking meets practical doing. Hence, it is up to strategic actors to use IS in a way as to creating synergy with other resources and opportunities in the strategizing process. Only this way would managers be able to make a connection between the conflicting demands of organizations, i.e. innovate new processes and exploit on current resources.

We may consider that the ways in which IS were used by managers/advisors were reflective of the characteristics of the managerial mindsets. At HPC for example, subsystems were most prevalent in the US OU rather than in the German headquarters. Considering that managers in each location have different mindsets, management practices and resources, this may be indicative of the need for more flexibility, efficiency, and discretion in managerial practices in the US OU than their German counterparts (cf. Weick 1998).

The 'alliance approach' outlined in chapter 5 has been an initiative of the US-based top management with the aim to facilitate an integrated involvement between managers and various organizational functions and teams, as well as with clients throughout all phases of the competitive bidding process. The approach allowed individual managers to improvise and apply their personal knowledge specific to their local markets in the competitive bidding processes. Traditionally (and prior to the strategic initiative), the US OU had to follow a top-down and rigid approach dictated by the German headquarters. This allowed little room for an integrated client involvement as well as more frequent and informal cross-function collaborations.

The traditional top-down approach, however, was indeed preferred by senior managers in Germany. While the structured and hierarchical system seemed to be appropriate for the operations and engineering, on the managerial level, such environment was not enabling to the innovation and exploration of new management information (MI) and knowledge on the organizational level. Every decision and consideration for a change in decisions was subject to lengthy authorization and approval processes. The bureaucratic structure made processes time-consuming, slow, and inefficient. This would become evident every time a manager would propose a new to the traditional way of doing things. With regards to the alliance approach, this was only used at the US OU after a lengthy approval process from the headquarters. The different managerial practices, cultural and mindsets were a starting

point to create subsystems on which each manager could accumulate key constituent parts of their strategizing approaches in their particular situation.

Notably, the subsystems in the German and US OU were different. Managers in the US OU developed the alliance approach strategy in order to prevent 'reinventing the wheel' for most project they undertook (Interviewees 3, 12, 16, 17). This involved being responsive to the changing environments and focus on action, rather than reflecting on consequences. This reminds us of managerial mindsets (Gosling & Mintzberg 2003) reviewed in chapter 2. The market environments of the US OU would not allow managers not to be action-oriented. Change was not something to be managed, rather, it was an integrated part of being and strategizing. The action mindset refers to managing continuity rather than change (ibid). This attitude, per se, was not an urgent requirement in the German environment and hence subsystems served that particular purpose in a more subtle way.

Part of managing continuity is fostering an environment where informal knowledge sharing can flourish, and that in such a way where each contributor's input becomes integrated to the everyday coping. Gosling and Mintzberg (ibid.) refer to a collaborative mindset, where relationships are managed from the bottom to allow responsibility flow naturally among self-managing teams. Stepping into the PCS study briefly, the collaborative mindset was particularly evident in the A-team. The differentiating factor was that each advisor carried responsibility for managing their own know-how (on the basis of their subsystems) within their particular role. The already established network and social systems within which they worked enabling an environment in which exploration and exploitation of information and resources could flourish.

In HPC, while the US OU's philosophy was to operate from this mindset, the continuous interaction with the German OU, where responsibility was coming from the top, made consensus-building and decision-making very difficult. Overall, the higher concentration of experience-based knowledge workers in the German headquarters (i.e. the heart of the organizational memory) called for different kinds of subsystems. While in Germany, the subsystems were influenced by past performance and relationship with the company's long history, in the US OU, managers tended to be future-oriented and hence directed towards predicting future markets and moving forward with acquiring more market share. Consequently, the nature of the subsystems were influence by these different 'moving-

towards tendencies in managerial thinking, doing and seeing (i.e. Mintzberg & Westley 2001).

Notwithstanding, the different ways of using IS associated with different ways in thinking, interpreting, sense-making and working had created alienation between knowledge workers in the German and US OUs. A US-manager stated (Interviewee 8): 'When we speak we aren't on the same page... We speak the same language, but aren't communicating... this makes meetings not very effective.'

The majority of interviewees attributed the conflicts and problems in reaching consensus to be rooted in cross-cultural differences among top management more than anything else (e.g. a lack of integrated MIS). While the cultural argument is not denied, we also consider the following possibility: Had there been integrated knowledge platforms and collaborative mechanisms in place (Zack 1999; Zander & Kogut 1995; Kogut & Zander 2002), which were in line with a common corporate culture, then an environment of trust and openness could be fostered which would mitigate consensus-building problems to a large extent (Davenport & Prusak 1998; Tsai 2001). A major challenge associated with this consideration is how to bring together the different mindsets onto one page and build an integrative corporate IS mindset conducive of sharing (cf. Weick 1998).

Nevertheless, it was not the purpose of this research to study mindsets, but rather to be aware of such *distinctions* help us identify different ways in using IS in decision-making processes. At the same time, the manners to wards using IS can be seen as a reflection of a mixed set of attitudes deeply embedded in particular contexts. We perceived mindsets as intermingled, interacting and overlapping in practice depending on the changing context and on the persona managers reveal on the surface when communicating. At the same time, this is not surprising, considering that the process of strategizing involves cross-functional and cross-cultural communication. This observation confirmed again the ambidexterity characteristics associated with strategizing and use of IS. To this end, Tinaikar (2006) argues that managers who leverage IS well share a certain mindset. He argues that these managers (i) do not make formal distinctions between IT and business management, an integrated view across IT and business, in other words; (ii) use technology that is not always leading edge, and (iii) have an enabling processes and governance in place to make the best use of these technologies. The mindset as to 'how technology should be

managed' is a barrier in itself (ibid). The focus on how much it will cost, which IS to use, how to use them, how they should be managed, and how much these help the bottom line, is not an appropriate mindset.

Notwithstanding, the embeddedness of managerial mindsets in knowledge processes is a question of level of abstraction. While some knowledge may be routine and automated, others may be tacit at higher abstraction levels which cannot be accessed via computers or consultation with colleagues (Wiig 2004). We imply that the higher the level of abstraction (i.e. use of personal knowledge, and experience involved in getting a job done), there is an increasing need for flexibility in order to create more room to maneuver. This increases the tendency to use information and knowledge resources in an ambidextrous manner. It is on this basis that the notion of ambidexterity becomes significant in IS use.

Referring to the first argument above, if the available information infrastructure (II) and work structure are rigid and not transparent (hence, not allow ambidextrous ways of strategizing), then there is higher probability to improvise (yet still within the frame of formal rules and procedures) and drift from centralized mechanisms towards flexible and informal (Land 1991) structures. This drift may be a deliberate decision to serve one's own needs, or the result of incrementally built files and networks which accumulated to become managerial subsystems over time.

Based on this interpretation, the different ways the subsystems have been shaped in the German and US OUs is not surprising. While US-based managers were described as 'doers' (Interviewees 1, 8, 12, 15), the Germans were self-described as the 'analyzers' (Interviewees 5 and 15). We infer that while US managers at HPC seemed to have deliberately built systems around their work structures, subsystems at German headquarters emerged from the bottom with characteristics specific to the more bureaucratic work structures and experience-based strategizing approaches of the family-owned traditional company. The US OU also had a more aggressive, yet short-term approach to strategies, with heavier customer-orientation than their product and engineering-oriented German colleagues. A German manager said: 'my colleagues at our US office decide and just go for it. Here, we keep analyzing as to 'why' we should decide on something ... '. US managers were more eager to emphasize relationships and take risks, expand networks with business partners and work closely with potential customers throughout the bidding process. This

philosophy was reflected on the recently devised competitive strategy initiated at the US OU, which was not welcomed at the German headquarters to be adopted globally. While both had the same goal - winning more customers – their approaches were often in conflict with one another and limited by not understanding one another's languages (as of mindsets). This was a major frustration, which led to further political tension. Consequently, a lack of collaboration meant further separation rather than synthesis, more politics and less knowledge sharing, further drift towards individual subsystems rather than leveraging social networks more thoroughly.

The connection between mindsets in strategizing and the use of IS was also revealing at PCS. The success of the A-Team was attributed to its members having a well-integrated mindset combined with a cohesive culture reinforced by team leaders. The combination of individually nurtured subsystems plus an open and trusting culture among team members provided an enabling strategizing environment. However, when team members had to work with members of other teams, which happened frequently, there were problems of reaching consensus and coming to an agreement about a series of decisions because they operated from different knowledge bases. A similar situation was observed in HPC on the inter unit level, in the German and US OUs. It can be implied that the manners in which teams used IS were reflective of their overall strategizing approaches, and again reflective of the predominant mindset they applied in day-to-day knowledge working and decision-making.

In the case of HPC, managers struggled to foster an environment where knowledge sharing through IT-based or human-based social networking could permeate the organization across OUs. While senior managers did not favour the use of ICTs in managerial affairs, more recently, employed managers could not be efficient without the use of IT. This created a divide in consistent communication. In PCS, although interviews with senior managers indicated that they favoured a deliberate approach to IS rather than improvisation (Interviewees 1, 11 and 12), all emphasized that the strength of their strategy was based on personal knowledge and the ability to sense when to reveal information and how much information (Interviewees 2, 3, 4 and 5). Creating an environment where improvisation can occur for the sake of innovation and learning is also referred to as playfulness by Ciborra (2002).

Observations supported the responses from interviews that various forms of IS were so embedded in the playfulness of strategizing processes such that strategic actors rarely noticed them while they used them. This discussion relates to Polanyi's (1966) argument of 'embodiment of tools' in the work of strategizing. It is argued that, since sense-making is an embedded part of the human agent and specific to particular strategizing contexts, the use of information and knowledge, as well as the use of supporting tools in the process are also embedded in the work process. Furthermore, the *ways* in which these are combined and used are also already embedded in the process of deciding and acting, whether users are *consciously* aware of it or not.

This is the point of departure to elaborate on the second argument we made earlier in this section. While the first argument assumed the manager to be rational and somewhat in control of his/her destiny, the following alternative perspective counters the underlying assumptions of the rational manager. While keeping in mind the idea of deliberation and goal-oriented mindset, we found indications of situated-ness of these goals where managers seemed to have the *perception* of being-in-control in particular moments in time. Over the course of strategizing, however, many elements of the initial plan did not later fall into place as first desired. In action, managers/advisors found themselves coping with surprises and emerging conflict on the daily basis while, in their minds, adjusting to changes but still thinking in deliberate terms that they are moving towards the desired destination. The understanding of this mode of strategizing has implications on the use of IS. In this light, the conceptualization of the *involved* manager (Introna 1997) with underlying philosophies based on Heidegger are especially insightful in explaining the discrepancies between what was observed in action and the responses from formal and semi-structured interviews.

7.2.3.1 IS and Mindsets as Immanent to Strategizing

Thus far, we have argued that information and knowledge were used in an ambidextrous manner as part of the process of creating flexibility and efficiency. Furthermore, we found the existence of subsystems which allowed this ambidexterity to take place in a more structured manner. To explain this further, this section interprets strategic actors as *immanent* to the strategizing whole, implying that the IS that they use are part of their existence, which become an extension of themselves, and hence immanent to the

strategizing process itself. Notably, implicit to this interpretation is Polanyi's (1966) concept of embodiment of tools.

Subsystems essentially consist of deliberate and emergent forms of information, knowledge and systems, *including* personal knowledge, which were used in a way to meet the particular need of a situation. The ambidexterity characteristic of the use of IS does not make sense when we consider IS and strategic actors as separate entities, or when we consider each in vacuum (outside of the strategizing context). Hence, it is argued that the ambidexterity characteristic exists *because* of the situated manners in which IS are used in connection with the situated human-ness of the strategic actor. Notably, we refer to the situated-ness as a 'manner' or 'the ways in which' IS are used in order to get a job done; we do not refer to IS as an object separate from the user and the context which need to be strategically aligned to one another. This can be observed whilst the ambidexterity is being created during the uses of various IS tools in action. Hence, while conceptually we distinguish between exploitation and exploration strategies and then suggest a link, in reality, the ambidexterity (i.e. the manners in which IS are used) itself is immanent to the process of strategizing as an extension of the users' mindsets and being in the world.

The figure below illustrates the assumptions behind this second argument. The figure was introduced earlier in this chapter where the A-B-C elements were separate entities and linked to one another through arrows. The modified version illustrates the concept of immanence, where elements A-B-C exist simultaneously in the same involvement whole. It is not to imply that one argument presents a more real explanation of reality. The aim is to present alternative understandings of the whole by observing the conceptual elements at play, and reflecting on the IS strategizing framework for possible amendments.
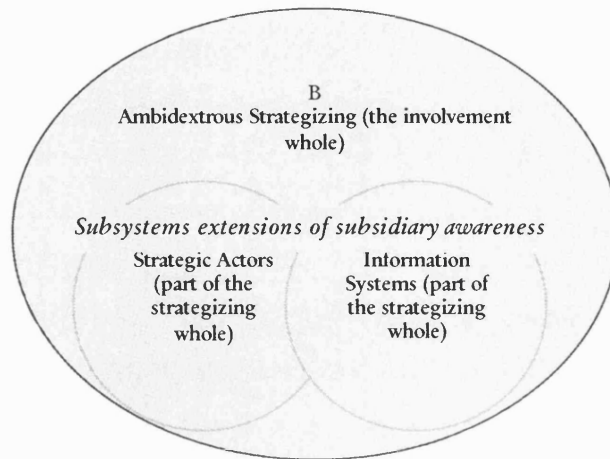
Figure 7.5: Alternative interpretation: strategic actors, information systems and strategizing as part of one involvement whole

Specifically, the conceptualization of strategic 'intent' as 'dwelling' (Chia & Holt 2006) and the explicit focus on human agency as the *involved* manager (Introna 1997) provide especially useful supporting theories to developing the IS strategizing framework and add insights into:

- The 'why' behind the ambidextrous strategizing and the congruent manners in which IS were used. Here, we examine the idea of IS as immanent to strategizing, as well as the exploitation *and* exploration IS approaches as integrative. This discussion is directly related to the components of the IS strategizing framework.

- The 'who', where human agents are seen as immanent to the strategizing process. It is argued that the use of information and knowledge cannot be separated from the human agent's involvement. This will be an additional argument to the IS strategizing framework.

These points will be further highlighted in chapter 8 in suggesting contributions to the IS strategizing framework as well as ideas for further research.

Introna's (1997) conceptualization of the strategic actor is used as an opportunity to compare two ontological perspectives on the human agency: the involved versus rational manager. The purpose is to explain the ambidextrous use of IS, which had manifested itself in the existence of subsystems. Chapter 2 gave an overview of major concepts behind the involved manager; we revisit the table below:

	Involved Manager	Rational Manager
Mode of being	Available	Occurrent
Comportment	Getting the job done	Effectiveness & Efficiency
Purpose of information	Sense (re)making and alliance building	Decision-making and problem solving
Action imperatives	Local logic and 'bricolage'	Plan and control
	Doing-thinking	Thinking then doing
	Opportunistic	Calculated and reasoned
Knowledge resources	Tacit knowledge	Representations
Key assumptions	Thrown-ness	Autonomy
	Networks	Linearity

Table 7.6: Two ontological views on the manager (Introna 1997: 173)

The underlying assumptions behind these ontological positions are in relation with the conceptual dichotomies of exploration versus exploitation approaches to strategizing and to IS strategizing. The essence of involvement lays in the ontological form of 'in', which implies concerned absorption, an existential statement (Heidegger 1962). While the 'involved' manager is shown to focus on 'getting the job done' who used information in order to make sense of the issues at hand, the 'rational' manager's goal is to achieve effectiveness and efficiency in decision-making through deliberate planning and problems-solving. When we consider the manager as his/her existence *in* the world without isolating this from actions and decisions, we are able to understand the use of subsystems. The 'being' mode of the manager tells us that actions and decisions were not separate from the manager, but part of his/her existence and being in the context. The use of IS is not something they decide to do, they are already using information and systems which already are immanent to the strategizing process. This is where the ambidextrous use of IS would make sense, when we consider that information and knowledge are already part of the strategizing whole and associated with managers/advisors' concerned involvement with the world.

Interviews at PCS revealed that advisors were portraying a role as rational managers who 'cannot afford to improvise', who 'must be efficient' in decision-making, take calculated risks and show enormous autonomy in problems-solving (Interviewee 1, 2, 5, 7, 9). Observations and interviews at later stages showed that although the rational presentation of advisors is crucial to the corporate culture, the act of strategizing itself put advisors in situations where their actions and decisions were similar to the characteristics of the 'involved' manager as outlined in the table above. On the daily basis, advisors spent time making sense of the information (overload), struggling to filter the noise and interpret the

mixed messages of the environment. When considering a decision scenario, advisors collected considerable amount of data from the corporate database in order to prepare a presentation based on hard facts and calculated risk. However, and according to all senior advisors, what is perceived as most valuable (and what is most valued by senior team members and clients) is the personal judgment and knowledge of the advisor rather than the data and facts provided by IT/IS.

This ability was perceived as competitive advantage relative to less experienced. According to a senior advisor, in order to develop this ability, 'you have to always be there' [i.e. in the involvement whole] to develop the sensory acuity as to what information to filter in the changing dynamics of a situation. This 'being there' was meant in a holistic way, which included formal meetings as well as 'office chats' with subordinates - which were in some way directed to collecting certain information. While this may seem to state the obvious, we also cannot take for granted the micro-level and informal activities that concern the human agent in the day to day dealings with the world.

The value of subsystems lied on the basis of managers' personal knowledge developed in the local context over a long time. Managers make finer distinctions of events and of management information (MI) in the process of understanding. Furthermore, this understanding may be conceived as an autopoietic process (Mingers 1995), whereby coherence is established and related to the environment (Introna 1997). Subsystems, as the personal information and knowledge (cues) repositories, were used to help managers in the process of making further distinctions in MI and in what things mean based on their tacit knowing and doing. This process is also associated with relating these distinctions with other autopoietic systems or individuals through explicit language and communication, which then becomes part of the social change.

The reliance on personal knowledge was seen as a more reliable source in decision-making because he/she is able to understand how other players may react in the dynamics of changing situations. According to Introna (1997), it is the tacit knowledge and the process of 'bricolage' (cf. Levi-Strauss 1966) that enables managers to take those risks in a 'calculated' manner. The compass, if one were to use this analogy, is more the tacit sense for what is right or wrong that comes from experience, than any IT or system. Similar findings were found at HPC. Recognizing the value of an integrated approach to

strategizing, with the new business strategy 'alliance approach', managers were able to apply more of their personal knowledge while working directly with clients at every phase of the competitive bid (as opposed to letting the prospective client to decided for the HPC from the outside).

In both cases, managers/advisors used deliberate IS when they found themselves as rational beings, but at the same time they could not escape the *Vorurteile* as part of their existence which influenced the interpretation of that data and information which were gathered. We explain this mode of strategizing through dwelling and the mode of manager through his/her Dasein in the world. At the same time, the rational manager who desires strategic intent and objectives is always in the background, where these become more or less explicit depending on the situation the human agent is in, e.g. they are immersed in the involvement whole, but behave rationally when this mode is triggered through a surprise visit of the managing director or a client to the office.

Dasein exists in the world by dwelling in it, where the immersion of human agents in the world is due to the fact that he/she is concernedly involved in the world (ibid) - like a fish dwelling in the water where its immersion becomes so complete that the water is always already 'disappear' (Introna 1997: 30). The conceptualization of strategy as dwelling is explicitly emphasized by Chia and Holt (2006) in understanding consistency in action without the existence of purposeful strategic plans. This is in direct contrast with strategy as 'intent' or intentionality (Introna 1997).

In the context of this thesis, the involved manager may be seen as being dwelled in the world where his/her immersion in the strategizing processes is due to the fact that he/she is already involved. In this being involved, decisions and subsystems (as equipment at hand) disappear into the overall involvement whole as being already available (ibid). It is this togetherness of the involvement whole where subsystems in strategizing are bound the managerial mindsets and the strategizing context. The easy-to-use nature of subsystems become withdrawn (disappear) into the whole such that managers can focus on the problem at hand instead of focusing on how to use an IT/IS. This contradicts the interpretation that subsystems were consciously constructed with the intention to facilitate conditions for ambidextrous strategizing. In the dwelling mode, however, subsystems were not constructed consciously, but rather, they always already existed as an implicit part of

the practical coping. However, they become explicit over time when they had become developed and had to be managed, shared, or used as bargaining tools.

What is prevalent in the management discourse is the notion of formulated objectives and intentions. From a Heidegerrian perspective, the traditional ontic concept of intentionality which directs our minds through various states and attitudes are refuted. Instead of referring to mindsets which the rational manger can adopt in specific situations, the phenomenological Weltanschauung uses 'comport' to explain attitudes towards some decisions or action in order to move towards to a goal (Introna 1997). It implies that 'towards' are already directed by being in the world, i.e. we comport (*Verhalten*) ourselves towards beings (Heidegger 1988). This concept is related to addressing the *manners* in which managers used information and knowledge to move towards a closure of a competitive bid. According to Heidegger (1988: 58): 'Comportments have the structure of directing-oneself-toward, of being directed-toward'. Introna (1997) highlights the notion of comportment to emphasize that managers do not select comportments; rather the intentionality is already the existence of Dasein. Heidegger (1962) calls the situated use of equipment Zeug, where things become meaningful in the process of using them associated with the context and purpose of their directed use. According to Introna, '... comportment is the concerned involvement of an immersed Dasein interacting with an always already present whole; a whole that has significance only in its whole-ness (Introna 1997: 30). In this sense, the strategic intent, so prevalent in management discourse, is argued to be merely a *post facto* construction to articulate the comportments which already exist in action. The below table illustrates the two ontologies on the same reality:

	Intentionality	Comportment
Based on	Mental content (models)	Being-in (world)
Directed towards	Objects (ontic world)	Equipment (tools)
Relationship	Intention Models Objects	Comportment Being-in Equipment

Table 7.7: Intentionality and comportment (Introna 1997: 31)

From this point of view, we doubt that managers/advisors strategically planned their subsystems and argue that these have always existed in one form or another in the strategizing process, however with different levels of abstraction and richness. Instead of rational managers/advisors intending to create strategic subsystems for flexibility and efficiency, the involved manager does not notice the already existing subsystems (the

specific *way* in which IS are used) because these are extensions of the manager's everyday coping. This is where their inherent value lies and facilitates efficiency. Managers find themselves so immersed in muddling through of everyday hurdles and opportunities (Lindblom 1979), such that they are not aware of the tools they use. When they were asked to reflect on the IS resources they used during a specific course of action, they could not put into words a sequence or consistency of actions or tools they used because first, they were not aware (or did not feel the need to be aware of) a specific actions, and second, the intermingled use resources made it difficult to remember what was used to what extent and for what purpose. The statement by interviewee 1 at PCG confirms this by saying, 'IT is just a tool, I don't think about it, I just use it whenever I need to'. There were many instances where advisors were speaking loud while 'moving-towards-to' a goal (Introna 1997). Here, every time they referred to a data and information on the systems, they always had their own interpretation and comments attached to them as to how that data and information was relevant to their particular situation. Here, their experience, personal knowledge and *Vorurteile* played a key role in interpreting the data and information.

The discussion implies that not only does the manner in which IS are used affect strategizing, but also the manners in which strategizing is pursued affect the use of IS. We argue that both are interrelated and mutually inclusive. Keeping in mind the involved manager, we may take the opportunity to reflect on the three approaches to decision-making by Mintzberg and Westley (2001) mentioned in chapter 2. Here, the being-in perspective would not make a distinction between 'thinking first', 'seeing-first', and 'doing-first' as Mintzberg and Westley proposed, but rather to view them as already integrated and situated within the manager's existence in the world.

Although one approach (i.e. 'thinking first') may seem to an outside observer to stand out more than the other, arguably, the other modes may be conceived as already there, yet not evident to our immediate awareness. For example, if a manager claims that he/she relies more on facts and deliberate actions than on experience and insight, as interviewee 1 at PCS did, then it does not mean that the 'thinking first' was the preferred or the right way of being, but rather the 'doing-first' and 'seeing-first' were either so developed that they 'disappeared' in the concerned involvement of the sense-making process (Introna 1997), or they were not as developed to be explicitly considered consciously by the human agent relative to the requirements of a particular matter. The unawareness of the other two

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approaches does not necessarily mean that they were not available, only that they were not in the focal awareness (Polanyi 1973) in the doing of decisions, or using of information. The question becomes then if the three approaches to decision-making are so integrated that strategic actors do not notice they are being already used in some way, then doesn't this make human action 'mindless' practical coping, as Chia and Holt (2006) imply? The level of self absorbed involvement of the manager is a relative and philosophical question which goes beyond the scope of this thesis.

Whereas strategic IS theory puts the IS itself and its 'strategic-ness' at the centre, the consideration of the strategic use of IS highlights the human agent and his/her capability to use IS in a moving-towards way to get a job done, i.e. in a strategic manner. Hence, the referral of the human agent as the strategic actor in this thesis shifts the strategic-ness to the actor and the use of equipment (or *Zeug*) by the actor, rather than on the nature of the equipment itself. Along these lines, the assumptions behind the embodiment of tools (discussed in chapter 2) can be related in explaining the use of IS in strategizing as ambidextrous by relating the strategizing as focal awareness (foreground) and the use of subsystems as subsidiary awareness (background). This discussion expands on the discussion of the involved manager being 'dwelled' in the involvement whole by accepting a certain set of presuppositions and using them within his/her interpretive framework (Introna 1997): in other words, we 'dwell in them as we do in our body' (Polanyi 1973: 60).

The implications of this in understanding the use of knowledge in strategizing is that the collection of data, information and knowledge to build models and employ them as procedures for actions is not just a rational act. Rather it is rooted in our subsidiary awareness where we assimilate certain particulars as extensions of our body to form a coherent focal entity. In other words, the way subsystems came to be about were such that they could be withdrawn from their equipment whole such that it becomes the way we do things – and don't have to think about the use of IS consciously. This way, managers were able to use IS strategically while focusing on performing, rather then deciding to use a strategic IS. This is why behind the rational manager there is always an already involved one.

The discussion in this section explains the manners in which IS were used (i.e. the use of subsystems), as a result of managers' being-in the world, which came to be through an

extension of their subsidiary awareness into the world. Most often, the sense-making process also involved the referring to corporate portals, personally created files, calling colleagues and experts, and sending messages on the Blackberry. Once managers/advisors had adopted a way of using IS, over time, they would not think about them as IS tools anymore, rather the various forms of IS would be used as an integrated part of knowing, sense making and sense giving, and decision-making in the strategizing work (Weick 1995). In this sense, the use of IS, information and personal knowledge by strategic actors may be seen as part of the strategizing process itself. In this context the equipment is explained as if it were *withdrawn* from the consciousness of the human agents. Subsystems can be seen as a directed practical orientation, which remains withdrawn in the immediate perception, unless managers/advisors become explicit confronted with it. According to Heidegger (1962), only when equipment has withdrawn will it be available authentically. If managers were consciously aware of their ways all the times and act from the intention mode, then this would be artificial since the only authentic basis for understanding is being involved in the world, according to Introna (1997).

For example, it was during unexpected events, i.e. when PCS advisors had to rethink their strategy and incorporate changes accordingly, where they would become aware of that which was perceived as withdrawn at first. An IS would jump out of its 'equipmental' whole such that the managers became consciously confronted with it. This is where the traditional intentionality comes into play, when the referential whole is broken and subsystems, as equipment, stand out and become an object. In this moment, IS are not withdrawn anymore, but become significant vehicles in the moving-toward-to goal. It was then when the deliberate use of IS became more relevant. Referring to the concept of comportment (ibid.), we imply that deliberate and emergent approaches to IS (also called equipment here) are already embedded in the strategizing process, where the relationship between the manager (as the being-in-the world) and the IS (as equipments) is explained through comportment rather than a conscious intention to use IS as strategic objects to make a strategic decision. This is the manners in which the involved manager would use IS in strategizing. Fairly enough, this is where the distinction of the exploitation and exploration strategies in the IS strategizing framework become meaningful. However in the practical doing, they are perceived as part of the whole involvement where we imply the ambidexterity characteristics.

The playful combining of data, information and personal knowledge in strategizing processes while coping with conflict and adjusting for discrepancies is thus better explained through the dwelling mode. It is from this dwelling mode where subsystems developed to a point where they manifested themselves as the main IS strategy, per se, of managers/advisors. Heidegger argues that this concerned use of equipment should fit into a context of meaningful everyday activity, i.e. fitting in involvement whole. Hence, the subsystems make only sense in an involvement whole, where human agents use it in congruent contexts in order to get a job done, or for the sake of moving towards a goal (Heidegger 1962), or the initial intent of the strategy. At the same time, this *Dasein* already has a sense of having a plan and where one is going towards, for human agents are already part of an involvement whole that has a for-the-sake-of-which implicitly there. These explain our original arguments that (i) the unstructured process of strategizing is practiced in an ambidextrous way, (ii) that human agents are dwelled in the process and part of the process, and that (iii) IS, specifically subsystems, as equipments, become part of the strategizing and part of the human agents' being dwelled. We discussed this in terms of integrated IS mindset in the previous section.

In this light, the being in the world perspective, helps explain the more normative oriented 'managerial mindsets' argument (Gosling & Mintzberg 2003) on a deeper level, which provides an explanation to ambidextrous strategizing on the conceptual grounds of strategizing as dwelling mode. Furthermore, viewing the manager as involved and dwelled in the situation imply that subsystems may always existed in that particular mode, but they were withdrawn and hence not perceived as 'strategic IS' per se. These subsystems revealed themselves as useful and as 'something in order to' (Heidegger 1962: 97) in everyday dealings, and in the concerned involvements with the hurdles.

In both case companies, managers/advisors reflected characteristics of the 'rational' manager when talking about their strategies and actions, but during the process of everyday decision making, attributes of the 'involved manager' were more relevant. According to Introna (1997), when the involved manager is reflecting on past decisions and actions, they are likely to reconstruct a rationality behind them in order to portray the picture of a rational being. In the interviews, specifically at PCS, advisors almost always used words such as 'exploit', 'bottom-line', and 'strategic decisions' when speaking of their strategizing approach. These sounded quite deliberate. According to Introna (ibid.), deliberate

vocabulary is used to justify their seemingly irrational actions. This explains the rational behind the involved manager, that although managers start with a deliberate intention, or intentionality to solve problems, decisions, actions and use of IS become all part of the being-in-the-world and the so called rationality becomes subject to its changing environment.

Introna argues that the primordial sense of knowing is a default position, and actions do not have a global rationality, only a local or situated rationality. Once again, we believe this explains why strategizing is ambidextrous and why subsystems emerged as part of the involvement whole in order to get the job done. It may be implied that behind the *rational* manager is always the *involved* manager who is already thrown into the situation at hand and works his way through the maze of information, noise and unintended consequences trying to make sense of what sounds 'rational' while using his already embedded references and experience in the state of mind he is in already. It is through his already being in the world where the certain rationality makes sense. When situations change (e.g. referring to a different national culture), the same rationality may not apply to the particular circumstances because the 'being' of the strategic actor in the new context becomes influenced by the ways in which he perceives his thrown-ness in the world in relation to the references he has from the past. So, while one has the desire to step back, use deliberate IS to make rational decisions, at the same time, one cannot really escape the situated-self and step outside a world in which things already are embedded. At this point, it is not sensible to separate human agency, strategizing work, and IS, they are all part of the same whole. The consideration of personal knowledge in addressing IS in managerial strategizing work has implications on the conceptualization of MIS. The application of Heidegger and Polanyi as underlying assumptions may provide the basis for alternative interpretations.

7.2.4 Summary

Section 7.2 analyzed the manners in which IS were used in strategizing at the case companies. It identified that the existence of subsystems were well-reflective of the ways in which managers engaged in strategizing processes. We then introduced the notion of ambidexterity to describe the manners in which IS were used by strategic actors. This ambidextrous manners towards IS use was bound to the strategizing context. Furthermore,

section 7.2.3. sought explanation to this finding by focusing on the human agent. Two possible interpretations of human agency were presented.

The first argument advocated the top-down and/or bottom-up strategies prevalent to the IS –business strategic alignment model (cf. Henderson & Venkatraman 1993). The underlying assumptions imply that agents are rational beings who decide which mindset and IS to adopt in order to find the right information and apply it at the right time. The second argument touched upon a profoundly different ontology to view the manager, information, knowledge and systems as situated and all parts of the same involvement whole. Special reference was made to the involved manager (Introna 1997), which viewed human agents as Dasein who is already dwelled in the strategizing world and uses management information and personal knowledge as extensions of the body. On the basis of Polanyi's (1966) embodiment of tools concept, we explained the use of IS in the form of subsystems which have always already been existent, yet not explicit to one's awareness. Along these lines, we argued that the use of IS is immanent to strategizing while managers are involved in using information and personal knowledge in getting the job done. It is during the involvement of ongoing learning and managing change where personal knowledge is developed and becomes embodied with the use of IS.

Having considered the world of the manager and the use of subsystems as ambidextrous IS, now we consider the manager and subsystems in the world. The next section reflects on what it means to the organizational dynamics in terms of unintended consequences.

7.3 UNINTENDED CONSEQUENCES

'There is improvisation, drift, and unintended consequences'
(Monteiro 2004: 129)

Section 7.2 identified the emergence of subsystems as tools that support the strategic use of information and knowledge in strategizing processes, highlighting the need to behave ambidextrously and use IS in according manners. Over time, however, this way of using information and knowledge posed challenges on the organizational level. This section identifies some of the implications of subsystems in the organizational whole. In both cases, it was identified that while subsystems achieved IS and business strategy integration

specific to the managers'/advisors' needs, the reliance on them led to a degeneration of the formal IS at organizational levels. The (unintended) consequences included: (i) the fostering of a 'them and us' culture and political tension between teams, which would (ii) have an increasingly adverse effect on knowledge sharing and effective transfer, and in turn affect organizational ongoing learning (OL) memory (OM) in the long-term (cf., Monteiro & Hanseth 1996; Robey & Boudreau 1999). OM was referred to the information, know-how and experiences stored from past projects with the purpose to reuse some of these in future decisions and projects (Walsh & Ungson 1991). Unintended consequences is a major area discussed in interpretative studies of IS (Orlikowski 1996, Walsham 1993, Ciborra 2000). The section will unfold these factors to address the connection between managerial IS and the organizations' larger socio-technical II. But first, a few words on knowledge sharing and transfer in general terms before embarking on a discussion of the subsystems and their potential consequences.

7.3.1 Managerial & Organizational Disintegration

Initially, the HPC experienced difficulties in cross-unit communication for reasons including lack of an integrated II and IT-led tools. Furthermore, German and US OUs had difficulties in transferring knowledge as a result of the knowledge being too specific to individuals' strategizing approaches, and also being culturally and locally bound, making it difficult to transfer. Despite continuous attempts to foster an enabling environment through frequent personal exchange and person-to-person communication, the lack of integrated social networks across the units and lack of technical facilitators, did not foster the desired level and quality of communication among units. Structural difficulties of information and knowledge flows between teams and units had led to lack of transparency and a struggle for key resources globally. As a result, we saw that experienced managers constructed their own subsystems in order to exploit what was available to them in terms of organizational resources and at the same time explore new opportunities within their professional circles, exploiting their own know-how in line with their strategizing approaches.

Over time, however, this way of using IS in strategizing across the organization (which could be characterized as dispersed personalized bundles of knowledge), had led to a structural and cultural disintegration between the use of corporate top-down IS and the

manners in which managers organized and used management information and knowledge in decision making processes, namely in subsystems. These had implications on the sharing and transfer of information and knowledge among teams, and between units. The next section will elaborate more on this consequence.

7.3.1.1 Knowledge Sharing & Transfer

Transfer of knowledge was largely influenced by socio-cultural and institutional distance between the subsidiaries of the foreign and home country (Adler 1995). Furthermore, there is a rich structural hierarchy of information and knowledge within the case companies and their environments: divisions, functional areas, product lines, professional specialties, project teams, etc., all interact with each other across various levels of the organization. Most often decision makers at HPC communicate long-distance and efficient means to transfer and communicate knowledge become significant. In order to filter the kind of information and knowledge that managers/advisors needed in their decision-making and everyday strategizing, they created subsystems in their own working spheres. While these seemed to be appropriate solutions on the individual level, managers/advisors do not exist in vacuum.

There are unintended consequences associated with using isolated IS, such as these managerial subsystems. These consequences became evident when strategic actors found themselves working in the organizational socio-technical system in the process of knowledge sharing and transfer during a strategic bidding process, for example. It was during the times when managers moved between various managerial and organizational strata where it become evident that managers operated from self-constructed subsystems rather than from the overall organizational II with all its rules, procedures, rigidities and politics.

Gupta and Govindarajan (2000) provide categorization for knowledge transfer and flows which make clear the abovementioned point about moving between organizational strata. Knowledge flow refers here to the sharing and transfer of decision-specific knowledge and information between managers across functions, OUs, and countries. Gupta and Govindarajan (2000) refer to knowledge flows from (i) parent to subsidiary, (ii) subsidiary to parent, (iii) location to subsidiary, and (iv) subsidiary to location. The flow from parent

to subsidiary is the traditional flow where the subsidiary exploits home-based corporate resources. The reverse is the flow from subsidiary back to parent, where headquarters are able to exploit local competencies. This seemed to be a main problem at HPC (i.e. transfer between the US and German headquarters).

The predominant challenge was described by the EVP in the US OU as the difficulty to build consensus with the German-dominated executive management due to differences in mindsets and cultures. At the same time, we observed that managers at US OUs relied predominantly on local subsystems which were constructed on the basis of their strategizing approaches and strategies in their own market. While these created supportive systems for strategizing, something they very much needed, it also contributed to managers operating on different knowledge platforms based on more differences than similarities in terms of underlying beliefs, parameters and criteria (to use their language). This implies that the larger the gap in the accumulated knowledge base between two OUs, the more difficult it is to transfer knowledge effectively. This was seen to be at the cost of the absorptive capacity - the speed and quantity by which organizations absorb knowledge (Cohen & Levinthal 1990) - of the OUs. In order for knowledge flows to be effective, the absorptive capacity of the subsidiary is crucial.

The flow from location to subsidiary implies that the subsidiary may exploit local competencies and resources by exploring opportunities, assessing, filtering and choosing information. Communication and knowledge transfer are easiest in face-to-face communication between two units that have the same culture and speak the same language. Problems emerge when there is little proximity in geography and culture, which is to imply that there will be a larger gap in mindsets and ways of working. A major frustration at HPC was the perceived disconnection from the knowledge network and information resources held at headquarters. Not being fully able to become involved in the thought processes of senior executives at headquarters in strategic decisions created alienation and political tension between the units. This in turn affected the degree of absorptive capacity during knowledge transfer efforts. The reverse flow from subsidiary to location is termed 'spillovers', referring to flows both into and out of the firm (Mudambi & Navarra 2004). This was a significant part of HPC's and PCS's competitive strategy: constant two-way communication and learning about emergent customer needs while providing education and consultation services to them. Spillovers also include intended and unintended

elements. Examples of intended flows are to suppliers and customers, which are largely planned. However, flows through employee mobility or imitation by competitors are largely unintentional (ibid).

In this context, the IS literature argues that integrated knowledge networks and platforms may enable knowledge to be transferred effectively (Hustad 2004; Tsai 2001). According to Boland and Tenkasi (1995), it is through dynamic interactions between knowledge workers and communities that new configurations of knowledge can emerge. Here, ICT-enabled platforms of 'communities of knowledge' (Hustad 2004) can stimulate these processes. Hustad argues that in an inter-organizational context, where multiple communities have to communicate and collaborate, as we have seen at HPC, there is increasing complexity and difficulty for knowledge transfer and sharing enabling mechanisms. As has been noted, Szulanski (1996) explored factors that impede inter-unit knowledge transfer by referring to a firm's 'internal stickiness'. He identified two such factors: motivational factors and knowledge-related factors. The former related to the subsidiary manager devoting sufficient time and resources to teams and knowledge transfer. Although this was a dominant approach at HPC, advisors at PCG did not have that leadership to provide the motivational factor (except for the A-team). The knowledge-related factor concerns the tacit and context-specific nature of experience-based knowledge. Szulanski points out that this process requires considerable time and effort. This second factor was seen as one of the main reasons contributing to the need for subsystems as a way to make strategic use of personal knowledge while exploiting organizational IS resources.

Many companies recognize the need to improve organizational structures around knowledge, and show willingness to develop a knowledge sharing culture alongside knowledge sharing technologies (Hiebeler 1996). From a social network perspective, Tsai (2001) argues that inter-unit knowledge transfer in multi-national companies occurs in a shared social context in which different units are linked to one another. In our case companies, while the existence of subsystems allowed managers to build close interpersonal networks, they also inhibited the diffusion and creation of new knowledge across units (Tsai & Ghoshal 1998; Tsai 2001). While this was an organization-wide agenda at HPC, advisors in PCS had to create this environment by themselves through personal knowledge sharing strategies.

When addressing IS, or knowledge sharing strategies, the level of abstraction of those strategies is an important consideration. For example, suggesting a certain social networking strategy with the inclusion of appropriate IT-enabled tools may seem plausible on the surface. Yet, at the micro-level, problems and challenges emerge which may or may not be worthy of intervention. The discussion below will elaborate on these challenges and argue that subsystems - although created to support managerial decision-making - may have an adverse affect on OM, OL, and cross-cultural communication.

7.3.2 Wider Implications

We have identified that one of the reasons subsystems emerged in HPC, besides structural insufficiencies, was difficulties in cross-cultural communication and consensus-building (HPC interviewees 1, 4, 6, 7, 13, 15 and 18). National cultural differences play a major role in information interpretation and sense-making, particularly in strategizing processes, due to the heavier reliance on tacit, path-dependent, and learned knowledge. Most managers believed that they would not get the desired quality of knowledge through electronic means, exacerbated by differences in mindsets, national and function-specific languages. According to Hofestede (1984), what is appropriate knowledge in one country may not suit the needs of firms in other countries. This is due in part to factors such as language, business culture, and local ways of working. At the same time, subsystems did not improve organizational level communication and quality of knowledge transfer between units. The subsystems, we have argued, led to greater resistance towards knowledge sharing and transfer, which would inhibit effective and on-going organizational learning (OL) and the transfer of managerial know-how into the OM.

During the study, the US OU was especially involved with their colleague engineers in Germany and Canada; and Germany was heavily engaged with Brazil and Shanghai. The challenge for HPC lay in the fact that the majority of business strategies were devised centrally from headquarters: from the US for all of North America and from Germany for global operations. However, each subsidiary had its own legacy systems and approach to business development. This made not only electronic communication difficult, but also face-to-face meetings because the mindsets of managers from different locations 'are not on the same page' (Interviewee 1). The effect of such problems expands across a wide range of engagements and makes the overall communication time-consuming and

inefficient. In this context, computer systems and virtual communications offer limited capabilities for capturing the essence of what is to be communicated between a manager in Germany and the US, or between the US and Brazil. The interpretation of that information is closely linked to the receiver's mindset, experience and a set of references. In HPC, a senior manager reflected: 'people are used to communicate in a certain way in their own culture; the way they interpret things and the way we interpret things over here isn't the same … sometimes it's difficult to tell whether you're on the same page or not' (Interviewee 7).

The difficulty in understanding the meaning behind spoken language is greater still when communication takes place through virtual means. On this note, Interviewee 9 added that virtual communication has not been helping in mitigating cultural distance. This concern was especially prevalent among sales and marketing managers who use a combination of technical data, commercial and experience-based knowledge, most of which is tacit. This form of knowledge, combined with different ways of communicating, makes interpretation and consensus-building time-consuming and difficult. HPC interviewees implied that managers in the US employed more formal rules while being less formal in behaviour (Lincoln & Guba 1985). German colleagues, according to the HR director in Germany, had a more labour intensive approach to information processing, which surfaced in demanding frequent reporting and detailed recording of projects from OUs.

Furthermore, managerial perceptions were different. While the US managers preferred a top-down strategic plan to an informal execution process in an entrepreneurial environment, German managers would behave conversely. Strategic plans coming from corporate headquarters can be considered top-down, yet they usually resulted in long negotiations and analysis before a decision was made. However, once a decision was made, the typical process of execution was relatively prescriptive and rigid. While either strategy can function well in its own context, the interaction of strategic actors introduces conflict and difficulties in consensus building.

Besides differences in culture and management thinking, generational differences in the perceived value and use of IS differed among the senior German executives and younger international managers. As one manager mentioned, 'IT is a generational issue' (Interviewee 7). The use of the email system and other IT-led methods for information exchange was

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significantly higher in the US OU than in the German OU. There is a clash between the older generation managers who perceive knowledge as tacit and values socialization as a way to transfer experience, and recent management thinking about leveraging ICTs for further speed and competitiveness.

Implications on the intra-subsidiary level were more evident at PCS, for example when different teams work together on a competitive bid. It was found that the same reasons had major consequences on building cohesive teams within the offices and an enabling OM. However, internal competition and resistance to open sharing fostered an environment which inhibited OL and future collaborations. On the contrary, advisors at PCS did not have HPC's structural problems or those associated with differences in national cultural distance. However, the ways of working – in other words the structure and system around working – had created a disabling team environment due to embedded memories and lack of trust. This lack of trust led to an increased use of subsystems and expansion in their network outside of the subsidiary (Davenport & Prusak 1998). Evidently, the sophistication of the IT-led II and lack of sufficient leadership from the office's director did not provide an incentive to foster an environment in which tacit knowledge and experience could be shared for further organizational learning.

7.3.2.1 Information Systems and Organizational Memory

This section discusses the role of subsystems in decision-making with respect to the already embedded information and knowledge in the organization. When information is shared in and between groups, it becomes embedded within systems, and OM becomes both an individual and organizational level construct (Walsh & Ungson 1991). The authors argue that when confronted with a situation, decision makers recall memories of past performance and experiences that seem most relevant. This recollection acts as a reference and consciously or unconsciously influences the current perception of the problem situation and subsequent behaviour. The information processing perspective implies that those who use much information are more likely to emphasize the positive aspects of an issue (Thomas & McDaniel 1990). However, since the information is stored in the OM and is interpreted by people in their particular context, the re-use of organizational IS has significant bearing on the validity of the information and on future decisions.

In practice, the ways in which IS and OM affect one another are complex. Technology may have the potential to support the building of relationships and facilitate the exchange of ideas. Certain technologies, such as relevant decision support systems (DSS), may be supportive to a fraction of decisions that involve analytical processing of capturing the structure of the real world data in the form of multidimensional tables (MIS) and statistical systems specialists (West & Hess 2002). Manipulation and presentation of such information through graphical displays can provide valuable support. Data modeling, symbolic modeling and 'what-if' analyses are phases of DSS. Advocates argue that the role of these technologies in OM is to convert and store expertise into databases, build a collective corporate memory that permeates processes, products, and services in digital networks and to facilitate its diffusion among users (Hackbarth & Grover 1999).

At the same time, IS heavily based on ICT may foster an e-culture where the prime means of communication is ICT. Limited face-to-face interactions may be at the cost of a learned human ability to communicate knowledge in a way as to enable a dynamic and effective socialization process. Given that knowledge is highly context-specific, while experience is both time- and context-sensitive (perceptions in a specific time under certain conditions), a major downside to ICT-based IS strategies is that once knowledge has been simplified and converted (assuming for a moment that this is possible in the first place), users do not tend to question the underlying assumptions of the coded knowledge anymore. Furthermore, the apparent convenience of referring to electronic documents, as opposed to making the effort to meet with people, may encourage a less reflective and a more action-oriented attitude towards strategizing - perhaps with diminishing consideration of long-term consequences of such approaches to IS and business strategies.

Hence, one can argue that IT-based IS may increase the risk of misinterpretation and misperception, specifically across cultures. Furthermore, while it is clearly inefficient to reinvent the wheel every time a decision is made, the ever-changing environment requires a more critical view on information and knowledge, and a more open-minded approach to consider issues anew. In this case, organizational IS based on IT, as we saw in PCS, may pose further unnecessary limits, biases, and rigidities in strategizing. Conversely in HPC, organizational memory was predominantly embedded in the circles of senior mangers. There was the belief that as long as experience is communicated person-to-person, there was no need for ICT: this would lead to unnecessary investments and further confusion as

to how to use the system. There was scepticism on the part of senior executives in Germany as to the promise of ICT. Despite their leading position in cutting-edge technologies, IT-led IS for the purposes of strategizing seemed not to have captured their imagination. This sceptical attitude towards ICTs may also be attributed to a generational issue, as noted previously. One interviewee in HPC mentioned: 'IT is a culture which is not yet established here' (Interviewee 9). This indicates that an IT mindset has as yet to be cultivated before IT can permeate organizational knowledge processes. At the same time, the IT project manager at HPC stated that the attitude of younger managers was more open towards using IS/IT and would adapt relatively easier to the introduction of standardized systems, such as ERPs.

The pressing concern was on the managerial level, as senior managers were retiring and being replaced by IT-literate and multinational generation. Organizational knowledge-based competencies are in a vulnerable position when individuals leave the firm. Unless advisors/managers deliberately transfer their experience and connect individuals with the already established social network, the knowledge-base embedded in subsystems would be lost. During a period of six months, three PCS advisors with substantial experience left the firm. In HPC, one key senior manager left HPC for the reasons of lack of information transparency and difficulties in consensus building. As asserted above, there was no culture or system as such to capture the know-how and experience that knowledge workers had developed over more than a decade. This called for more deliberate strategies to IS through an IT-enabled II. Furthermore, as senior managers are replaced by younger generation knowledge workers, the value of their subsystems would not be transferable. Since the attachment of subsystems to the managers make them more valuable knowledge assets overall, with the departure of some senior managers, the organization loses the not only the person but also a major base of experience and know-how.

Similar to HPC, during the study, several senior and junior advisors in PCS retired or left the firm voluntarily. Upon their departure, all of their personal contacts and experience built over many years were lost. Despite the intensive investment in educating new hires and integrating them into the global II, there was no system to capture the intangible assets created by knowledge workers. Notwithstanding, all forms of data and information about advisors' performance and decisions were stored on the basis on which they were rewarded or punished. However, the personal knowledge that is the driver behind the advisor's

performance - 'making the numbers' - were not integrated in the II, and hence these were not part of the OM. According to a senior financial advisor: 'The only thing that remains [in the firm] after an FA [financial advisor] leaves, are the accounts – and those I can take with me should my clients decide to follow me.'

At this point, what can companies that already have architectural tools and systems in place, such as PCS, tell us about supporting managers' decisions as well as capturing some of the knowledge and experience built over the years? PCS seemed to have a rich IT-led II in place with relatively more IT-literate knowledge workers. Among these IS were also proprietary applications for managing massive data and information, specifically for transaction-based business which depended on the exploitation of ITs. The various forms of MIS were designed to work on a person-to-document basis, similar to the characteristics of the codification strategy illustrated by Hansen et al (1999) in chapter 3.

At the same time, organizational reward structure and culture dictated the manners in which advisors worked. Generally speaking, the culture, as well as the nature of the industry, fosters a mentality that is short-term oriented, focused on speed, on 'doing', and on social networking. More negatively, this was associated with a very high turnover rate. To this end, the manner in which the II is organized at PCS is well aligned with how the reward system is structured, namely around aggressive business development which was measured every week as of 'assets under management' and 'the number households annuitized'. Advisors faced a dilemma. Working in teams and exploiting the firm's socio-technical network was a risk and an opportunity at the same time. Historically, the probability of winning larger prospects is higher for teams than individual advisors, or when several teams work together towards a common goal (interviewees 2, 4, 5, 7, 9). At the same time, the culture of lack of trust and high turnover rate led teams and individuals to isolate themselves from other teams, sometimes also within the same teams. We identified the resulting political tension as another factor which encouraged advisors to build their personal subsystems as their knowledge base. The development of such systems in a competitive internal environment only encouraged the erosion of an open culture.

Stata (1989) defines openness as the partners' willingness to put all the cards on the table and eliminate hidden agendas. This is exactly what was happening between advisors when

working together, with an exception of the A-team who claimed to be always open in sharing key inside information and personal knowledge. Badaracco (1991) states that openness is paramount in knowledge sharing, (i.e., when the parties are trying to learn from each other). A lack of openness would be seen as a major constraint in hampering learning the knowledge embedded in the culture of the organization, specifically in the minds of senior/experienced managers. Subsystems seemed to have given the opposite message on the subsidiary level. The perceived lack of openness would lead to deteriorating level of trust among actors (Tsai 2001; Davenport & Prusak 1998). Hamel (1991) argues that the penetrability of the social context among strategic actors is perceived as important in determining the degree of openness and trust.

The channels through which actors interact have large implications for the perceived openness among companies (Von Krogh 1998). For example, the richness of media determines the extent to which knowledge is successfully transferred (ibid.). Media richness is discussed in two dimensions: the variety of cues the medium can convey and the rapidity of feedback it can provide (Daft & Huber 1987). When actors face ambiguous situations, face-to-face interaction presents the least possibility of misinterpretation of a message. According to Trevino et al (1987: 557): 'Meaning must be created and negotiated as individuals look to others for cues and feedback to help interpret the message'. Where strategic actors are exchanging ideas based on personal knowledge, their communication was always based on informal meetings or telephone conversations. Emails were used marginally by senior managers/advisors (i.e. to schedule the time and place of a meeting or to follow up with data or information on a previously discussed topic in person). Misinterpretation is less likely to happen in face-to-face interactions than in less closed forms of social relations.

It is questionable whether it is possible for personal knowledge of experienced and well-networked advisors to be 'captured' and 'codified' in the OM and re-used, as most are deeply path-dependent and relationship-based (Hitt et al 1999). Nevertheless, there would be a potential advantage in the possibility of their reuse, since all advisors operate under one company brand name and a new advisor could continue the relationships were the senior advisor left off. Being aware of this desire on the part of the organization (i.e. the managing director of the relevant OU or complex), individual managers/ advisors guard their personal knowledge based systems and use these as bargaining tools to get ahead

(Bennett 1998). The section below sheds light on the use of subsystems as tools for bargaining power. This is seen as an unintended consequence of subsystems from the organizational perspective.

7.3.2.2 Subsystems as Bargaining Power

With regard to the role of IS in competitive strategizing, one cannot disregard the consideration of subsidiary power and its potential in rent-seeking behaviour (Mudambi & Navarra 2004). Specialized information and knowledge that has been created through path-dependent networking is key to individual and subsidiary bargaining power (Foss & Pedersen 2004). In this light, Foss and Pedersen conceptualize subsidiaries as pursuing rent-seeking behaviour within multinational companies (MNC). They argue that these managers are able to influence the distribution of resources to their own advantage. Two reasons are outlined that feed into this competitive behaviour: external reasons for maximizing shareholder value aimed at maximizing profits, and internal reasons for increasing subsidiary bargaining power in order for divisional managers to have access to a large portion of capital allocations from headquarters (Mudambi & Navarra 2004). The latter reason is the object of interest within PCS.

At PCS, despite the comprehensive II and richness of data and information, there was clear resistance to knowledge sharing between teams, and limited knowledge exchange within teams. Sharing knowledge on an everyday basis and during meetings was resisted to a large extent such that direct contact with colleagues was kept to a minimum to avoid sharing. Information exchange between advisors on the status of a shared account was conducted via email. Although this seems unsurprising among other firms in the financial services sector, the overall nature of communication and interaction was contrary to the stated 'open door policy' and 'teams-based', or 'one company, one culture' company philosophy. The practice of open business values (e.g. Morosini 2000) was largely inhibited by the structure of the performance control and reward systems. This structure fostered a highly reward-driven culture and prescribed what decisions were given priority. Such systems set the parameters around trade-offs and the levels of risk that were tolerable (Wilson 2003). While this encouraged the emergence of subsystems, the long-term consequences of such managerial reaction were not in the best interest of the organization as a whole (Interviewee 1, PCS).

Another factor that led to a disabling knowledge sharing environment was the role of 'gatekeepers' (Lam 1997; Starbuck 1992) as key experts who limit the scope and range of knowledge shared and transferred. Starbuck (1992) argues that professional expertise entails 'perceptual filters' which could keep experts from noticing information and knowledge outside their specific domains. The subsystems at both companies are reflective of this phenomenon, where individuals became owners of knowledge within the firm and inhibited its transfer across functions and units in order to maintain their bargaining power. These 'perceptual filters' are no secret among knowledge workers. The assumption that others may know more than oneself led to over-dependence on individualized subsystems. Simultaneously, this escalated any sense of suspicion among knowledge workers and hence to an erosion of trusting working relationship (Lam 1997; Hamel 2000).

During the study, it became evident that a major factor that led to the creation of subsystems and their use as bargaining power was embedded within the subsidiary's OM concerning the past relationships between teams and the dynamics between them in competing for the same business. Over time, a learned resistance to share, and contact avoidance among the knowledge workers, had particular bearing on the success of the subsidiary as a whole, where the cooperation of high producing advisors was paramount in the client penetration process. In this context, Walsham (2005: 12) notes that situated learning is 'inextricably interlinked to the context of power relations'. OM advocates claim that OM will eventually fulfil a control function, which gives it a political role. According to Walsh and Ungson (1991), 'control of information creates a source of dependence with which individuals or groups in power are able to influence the actions of others.' Whoever has the control over information may choose to filter particular information from memory to support their agenda and sustain or enhance power. As a result, subsystems may also be in a position to be (mis)used as political tools to widen the conflict gap that already existed. One way is to use them as bargaining power and so influence the direction of resource allocation towards certain individuals, or subsidiaries. For these reasons, it seemed that teams or individuals had limited incentives to share and transfer their know-how, especially if it involved the time of their best people. By diffusing that knowledge, the subsidiary may lose bargaining power (Levitt & March 1988).

Furthermore, the HPC case showed that information and knowledge were associated with increased bargaining power, often leading to politicization of strategizing processes and

encouraging the growth of subsystems. On this evidence at least, the manners in which information and knowledge where perceived, interpreted and used had much to do with the dynamics among the strategic actors and their history of working relationships. On a final note, we identified that managers needed to interact with the rest of the socio-technical organizational system in order to remain updated and play the political game effectively in order to adjust their own strategies. While the culture had become very individualistic, at the same time, each individual tried to foster the perception in the organization that all members were working in a sharing environment such that they would participate in knowledge sharing. This process was a 'push and pull' power play between advisors in teams, and a major determinant in the manners in which organizational IS were leveraged and the ways in which subsystems where shaped.

Let us now turn to address the organizational efforts to move towards integrated IS and to overcome at least some of the unintended consequences of the organizational and managerial IS 'disintegration'.

7.3.3 Towards Integration

This chapter has been discussing possible reasons behind managers and advisors creating subsystems. Among them were the need for an integrated IS and business strategy to cope with unforeseeable circumstances and fast-changing environments. The chapter has also reflected on the long-term effects to the organizational system of socially constructed subsystems. This section reflects on some of the efforts on the part of the organization to reduce the disintegration of human intelligence from the organization's intelligence. Choo (1995) and March (1999) argue that the 'intelligent organization' is one which is able to mobilize the different kinds of knowledge in the organization to enhance its performance in a changing environment. The intelligent organization is another conceptualization of the learning organization discussed in chapter 3 (cf. Argyris & Schon 1978; Senge 1990), where the organization depends upon information management to learn and grow. This learning requires the capacity to harness the organization's information resources and capabilities (ibid.). Davenport and Prusak (1998) point out that many organizations believe that when they have the technology resource available, sharing will come, and that all one needs to do is have the resource available. But building trust throughout a company is a key to creating a knowledge-oriented corporate culture, a positive environment in which employees are

encouraged to make decisions that are efficient, productive, and innovative (Jarvenpaa & Leidner 1999; Davenport & Prusak 1998).

Choo (1995, 1998, 2006) refers to the still widely-admired Japanese approach, where, instead of focusing on 'processing' objective information, the ways in which organizations learn, grow and innovate is by tapping the tacit and highly subjective insights of individual employees' sense of identity with the enterprise and its mission (ibid). A holistic approach to organizational learning implies that the organization is capable of mobilizing that commitment and embodying the tacit knowledge of individuals into actual technologies and products (ibid). This tacit knowledge is cultivated through the organizational culture and a sense for a common purpose.

In PCS, while reward systems were based on individual or team performance, the success of the subsidiary as a whole depended on the richness and linkages among advisors and continuous collaboration and open business values of all participants. As we have seen, although there was a strong IT infrastructure, it encouraged a person-to-document interaction, or at the most, virtual communication among teams (Powell et al. 2004). Although advisors were seen to value a collective culture, it was difficult to consistently maintain strong team cohesion due to lack of person-to-person infrastructure, financial incentives, and contextual factors, such as high turnover rates among team members. To this end, various human resource practices (such as training, performance appraisal, promotion, compensation and communication) may have a positive impact on knowledge sharing (Davenport et al 1998). While none of these were used at PCS to enhance team cohesion, some were practised at HPC, where senior managers encouraged the exchange of managers between offices as an opportunity for training and improved performance.

In reference to HPC's effort, or knowledge strategy, in fostering a socialization platform to allow the diffusion of knowledge and experience throughout the offices, this attempt was not seen as successful at all times. Two reasons are given for the limited success of the program: (i) different Weltanschauungen and unfamiliar ways of learning and sense-making in the foreign business environments would make it difficult to integrate mindsets in relation to strategic issues (Choo 2006; Levinthal & March 1993); and (ii) once managers returned to their home offices, there was limited interaction with German headquarters unless required for a project. The first point might seem ironic in that the whole purpose of

working abroad was educational with a view to learning from each other. Yet, in order to learn foreign managers' thinking, they first had to understand the other person's perspective. Since the cultural attributes of actors and their ways of thinking are also embedded in organization's memory, culture became a significant factor in the ways managers interpreted information and reacted to news or initiatives. The ways in which human agents made sense of information and the strategic issue at hand was largely influenced by *Vorurteile* inherent to the respective national cultures (Introna 1997). Based on cultural attributes and personal *Vorurteile*, the way a strategic issue was framed may have mobilized or halted decisions and actions towards a particular direction.

According to Duncan and Weiss (1979), culture, as an organizational memory's retention facility, contains learned cultural information that is stored in language, shared frameworks (Duncan & Weiss 1979), symbols (Pfeffer 1981), stories, and the like. Organizational culture is pervasive throughout an organization and has been seen to have effects on the way decisions are made (Ott 1989). Terpstra and David (1991) argue that organizational cultures are influenced by national culture, and the greater the cultural differences between countries, the greater the difference between attitudes and practices (Datta & Puia 1995; Kogut & Singh 1988). Due to different beliefs and paradigms embedded within cultures, managers tend to draw different meanings from any given information than would their counterparts in a different culture. Different cultures lead to different attitudes towards the past, present the future, and what people choose to remember. The challenge lies in 'meaningful' interpretation, which refers to developing or applying ways to comprehend the meaning of information. It entails fitting information into some structure for understanding an action (Gioia 1986). Indeed, Daft and Weick (1984) make the point that organizations themselves can be viewed as interpretation systems.

Nevertheless, in HPC, the success of the program was seen to be on individual basis and cannot be generalized for all managers spending time abroad. Further to this point, Von Krogh et al (1999) argues that knowledge sharing and exchange requires the conditions of mutual (cognitive as well as technical) understanding and high levels of trust in a culture of openness and care. It requires certain attitudes and specific actions within the organisations (Gilbert 2000), such as internalising solid organisational culture, leadership, processes and infrastructures.

HPC recognizes that its information and knowledge processes need to be streamlined in order to cut costs and avoid reinventing the wheel at each operating unit (Interviewees 1, 4, 16, 23). Yet a pilot project to implement ERP in modules in selected locations (those with few legacy systems) posed many difficulties as a result of incompatibility between the IT infrastructure and managerial mindsets. On the organizational level, hundreds (if not thousands) of socially constructed subsystems made a corporate systems integration extremely difficult. According to the IT manager, technical problems are inevitable and can be overcome. The major challenge was to create a fit between new IT systems and the manners in which managers think about IS and strategies: 'some cultures have more difficulties changing their [management] thinking to the [ERP] system than others' (Interviewee 6). He added that, before implementing such systems, a change in thinking and attitude towards knowledge working was necessary, and that, ultimately, it is the user who determines the return on such investments. Having recognized this, HPC senior managers in the US OU emphasized the need for 'synthesis rather than separation' of functional departments and their work processes in the spirit of strengthening knowledge sharing and transfer. This was not only in relation to the ERP system the company intended on implementing, but also to cross-cultural differences in working and thinking. A synthesis of functions, cultures and mindsets was not an easy task. Soley and Padya (2003) suggest that certain cultural attributes could impede international operations of global companies. Recognizing that it is the individuals that acquire information in sense-making and decision-making activities, individual cognitive activities, as well as socio-cultural aspects play a central role in information interpretation and memory. As the home company has certain ways of interpreting, sense-making and decision-making regarding strategizing and business ethics, it usually does not consider the cultural aspects embedded in its international offices that make managers interpret their environment.

In international business dealings, ignorance of cultural differences is not just unfortunate, but it is bad business (Soley & Pandya 2003: 207). Comments such as 'they all speak English anyway' may hinder accurate understanding, waste of time, money, and most of all, a flawed OM systems that may lead to management conflict and a vicious cycle of inconsistent interpretations and decisions within the same (global) company. Considering that the frame of reference and personal knowledge in different locations has been developed in different ways, approaches to sense-reading and sense-giving are different accordingly (Walsham 2005). Hence, architectural requirements for building information

and knowledge infrastructures should only be regarded as an enabler of a knowledge sharing culture – not a solution. Nevertheless, a synthesis in mindsets was argued to be a first step towards creating an information and knowledge platform for better management, sharing and transfer. Hustad (2004) suggests taking a 'glocal' mentality as part of a global strategy. By linking the global and local concerns, an international company shows that it acknowledges the unique business tradition and local culture of each geographical site in the organization rather than standardization and homogenization (Hustad 2004: 59). This echoes Beck's (2000) concept of globality. A 'glocal' mentality would have value for HPC, presuming other elements in place that facilitate the dispersion and sustenance of such mentality over time, for example an enabling infrastructure, culture and necessary leadership.

In PCS, there was also a conscious effort to change the culture and de-freeze resistance to share knowledge. During the time of the study, a senior advisor initiated informal knowledge sharing meetings in the subsidiary which took place once every two weeks. These provided an opportunity for the entire office to participate in sharing their concerns, experiences, and to support each other by brainstorming ideas, i.e. how to go about their bidding processes and build trust with prospective clients. At PCS, the open-door but closed-culture was a major setback in winning new business by the teams. This process was meant to support the practice of open business values, strengthen mutual trust, and create more 'guiding myths' during the meetings. The purpose was to provide advisors with the opportunity to create a common culture on which they could build an enabling environment to share knowledge and expand their capabilities. The senior advisor who initiated the team indicated: 'I believe in leading by example. The key to success is motivated people who're willing to work hard …. what needs to be done is to allow that to happen.' The meetings would start with a motivational speech by the senior advisor to spark interest, with him stressing the importance of collaboration in the competitive environments in order for the teams to excel. As part of this, a performance monitoring agenda was prepared for each individual advisor to follow up with their progress in advancing their goals, while sharing their view of obstacles in decision making with other advisors. This attempt lasted three months, but failed due to lack of participation.

At the first two meetings, the director of the subsidiary attended and so did the majority of advisors, with the exception of a team who politicized the initiative. From the initial

meetings, the office's director was 'too busy' to attend and the number of senior participants decreased, leaving the meetings attended by a few junior advisors who, nonetheless, seemed to appreciate the opportunity. The presumption of the majority of advisors was that people do not share that which is valuable. The lack of participation led to the meetings being discontinued. Clearly, there was an attempt to create an environment in which knowledge could be shared: the intrinsic value of knowledge sharing is well recognized for the individuals as well as the subsidiary as a whole. From observations and discussions, several reasons may have contributed to the disappointing results - lack of (i) leadership from the top, and (ii) immediate incentives. The first was weak leadership on the part of the office's director who would not attend ('in order to keep a neutral political position'). The latter may be a result of the already established subsystems which had rooted the work and minds of the advisors in their own networks – which over time – had become self-fulfilling entities. Hence, sharing information for the benefit of the organization as a whole, would also mean relinquishing power.

The long term goal was to create a subsidiary-based team and eventually integrate this with the already successful A-Team. However, lack of a cohesive culture and strategic leadership led to the termination of an undertaking which could have led to one of the most successful teams in the company's US-based locations. The knowledge-based view of the firm views strategic leadership (Finkelstein & Hambrick 1996) as an important resource. From this stream, the concept of paradigms and 'managerial discretion' emerge, which are linked with personal characteristics and influenced by organizational and environmental factors (ibid.). With regard to managerial discretion in decisions about knowledge as strategic assets, Amit and Schoemaker (1993) highlight forces that influence the decision-making task under uncertainty, complexity and conflict. They refer to psychological theorists (Kahneman et al. 1982), who suggest that discretionary managerial decisions are affected by a range of cognitive biases toward the handling of uncertainty and complexity, and that shape the strategic direction of multi-national companies in the global markets.

Different paradigms and attitudes influence the choices managers make (Dutton & Duncan 1987; Daft & Weick 1984). For example, Hall and Hall (1990) suggest that, in certain cultures, people use information as an instrument of 'command and control'. Consequently, the acquisition, retention and retrieval of knowledge from memory

repositories influence subsequent individual behaviour (Walsh & Ungson 1991). While some managers want to learn from past mistakes and failures, others regard failures as distractions and choose to focus on new strategies. The subsystems gave managers/advisors the basis on which they could make sense of the situations based on their way of sense-making, working and being in the world. Specifically, with managerial mindsets and attitudes towards MI being different across functions and cultures, subsystems provide a standard basis to each individual.

A study by Newman and Nollen (1996) at Georgetown University on *Culture and Congruence* highlights the importance of the right fit between management practices and national culture. Perhaps this has been a missing link in the case of HPC's German and US OU. In other words, is management practices which are based on a common and integrated IS mindset, then cultural differences would not become a barrier to sense-making. A culture which fosters an IS mindset as part of its corporate culture may be less prone to the use of individual subsystems, or find a way to share the knowledge developed because of it instead of using these as tools for bargaining power. Nevertheless, central to the discussion is the appreciation of the dynamic interaction of many factors that influence the manner in which IS are used in the involved whole.

7.4 SUMMARY AND IMPLICATIONS

This chapter analyzed the findings and provided several interpretations in the light of the IS strategizing framework and supporting theories. The framework guided the analysis with particular emphasis on technical and social dimensions of IS in the spirit of fostering collaborative business strategizing. Based on the case studies, we argued that IS were used in ambidextrous ways. In his most recent work, Galliers (2007) has proposed the ambidextrous characteristic of IS strategizing to the framework through a link between the exploitation and exploration IS strategies. This thesis, apart from further acknowledging this point, explained the reasons for the occurrence of such phenomena via the supporting theories. While the framework's argument is in the spirit of strategic IS (SIS), this thesis explained the ambidexterity phenomenon through the consideration of the human agent as the strategic user of IS, i.e. strategic actor. A shift of emphasis has been on how IS are made strategic by actors, rather than assuming IS as strategic in itself. The explanation was

based on the underlying assumptions to view strategizing in terms of a 'dwelling' mode (Chia & Holt 2006), and the manager from a 'being-in' mode (Introna 1997). These supplemented a richer sense-making and interpretation of the use of information and knowledge through appropriate systems, and to show an important angle of ontology which has been underdeveloped in the IS literature with regards to strategy. The new insights gained through the consideration of the underlying assumptions behind the ontological position of the involved manager are argued to provide a solid conceptual grounding for suggesting an alternative view on the IS strategizing framework, which may be used as a basis for further research. These are further elaborated in chapter 8.

Section 7.3 argued that the trends with managerial IS showed implications on the organizational level by reflecting on some of the unintended consequences. For example, it was noticed that subsystems may have posed a risk to the 'absorptive capacity' among subsidiaries (Cohen & Levinthal 1990). Differences in cultures, mindsets, and difficulties in understanding one another's languages limited the degree to which one subsidiary absorbed and exploited the knowledge of the foreign subsidiary. The exchanging of teams in HPC was an effort to increase the absorptive capacity of the US and German OUs over time. Yet, due to lack of integrated IIs and an appropriate IS culture, among others, it was difficult to sustain the level of cooperation built and to sustain an open culture. Furthermore, the small proportion of senior managers relative to larger number of younger managers, led to political conflict that inhibited an open culture. Unintended consequences at PCS were in the form of political tension, since the study was not cross cultural, but between advisors and teams. The more advisors were able to become efficient on their own terms, i.e. on the basis of the using IS their own way, the more independent they became and the less they would share with colleagues. An exception was the way the A-team was operating. The use of subsystem on the individual level and their collaborative, integrated mindsets, and open attitude made them among the best performers. The figure below summarizes the arguments, following an overview of the interpretations.

| 7.3. Unintended consequences
Potential use of subsystems may have encouraged bargaining power; this may have inhibited effective sharing and transfer of information and knowledge, leading to:

- culture of distance and resistance to knowledge sharing
- adverse organizational ongoing learning
- adverse effects on OM in the long term | Organizational socio-technical context

Strategic use of information and knowledge via managerial subsystems | 7.1 In tandem use of deliberate and emergent to meet information & knowledge requirements in ambidextrous strategizing

7.2 Integrated IS mindset: the manager's concerned involvement in strategizing implies already existent managerial systems as immanent to ongoing sense-making, using and acting |

Figure 7.8: Overview of the arguments — feedback loop between managerial and organizational levels of IS use

Despite different emphasis on ICTs and designs of their IIs, managers/advisors in the case companies depended on traditional means of doing business: unique products, superior knowledge of products and customers, effective relationships, strong personal services (Galliers 2004). In the context of business strategizing and the role of IS, Galliers reminds us that the use of various collaborate IS may lead to organizational boundaries becoming increasingly porous in terms of communication and collaborations. Advisors at PCS, despite the rich internal resources, based their businesses to a large extent on formal alliances or informal collaborations with partners outside the firms, who would benefit from each others' services in their business dealings. This process is driven on the individual level, separate from the organizational II. Likewise, HPC managers in the US OU had to build alliances in their home markets which were not provided or supported by the organizational II.

In the case companies, subsystems showed themselves as crucial to decision-making processes because they allowed managers to learn from 'below', to engage in tinkering and improvisation (Ciborra 2000) even without their conscious awareness. These were the basis on which the involved manager learned from and responded to unintended consequences through emergent coping and incorporating ongoing changes. We explained that this procedual and embedded nature of subsystems IS indicated that the nature of subsystems were equipment (or *Zeug*) rather than objects, where managers comported in their being-in the world. Subsystems set the basis for ongoing learning and review, which had become already immanent to the whole and to the strategic actors' sense-making processes. This led

managers to get involved in improvisation as a natural way of coping. This enabled them to respond to the emergent and unintended consequences of their strategic decisions (Galliers 2004) and elements beyond their control.

While accepting that findings in interpretive research can never be conclusive in themselves, the findings within the frame of this research inquiry are summarized as follows.

1. Simultaneous use of deliberate and emergent IS in the form of subsystems to achieve flexibility and efficiency

Regardless of formal IS, managers/advisers across the cases referred to subsystems as a key basis of their decision-making. These consisted of a mix of deliberate and emergent forms of IS, which were adjusted to new incremental changes on an ongoing basis in the everyday coping. The analysis implied that (i) managers need both approaches to IS (i.e. deliberate and emergent), in order to be efficient and effective in the process of competitive bidding; and (ii) subsystems were seen as effective whenever practitioners were using them without explicit awareness and effort, i.e. IS become strategic when the are able to become immanent to the sense-making process itself. This way, subsystems became embedded to the strategic activity and human agents could 'mindlessly' use them and get the desired results. Subsystems were perceived as flexible systems to cope with change and continuity, and specific to the managers' ways of sense-making.

2. Integrated IS Mindsets

As an explanation to the above argument, the role of strategic actors was argued to be central to the use and usefulness (or the strategic attribute) of IS. It was argued that managers who leveraged deliberate and emergent IS simultaneously in the spirit of ambidextrous strategizing had an integrated IS mindset. The notion of the involved manager emerged to provide an enriching interpretation. This argument does not assume a drift, but rather that subsystems always already existed and were already used in one form or another by the managers. However, they were perceived as withdrawn from the focal awareness of the manager. While the rational manager was said to focus on strategic intentions and solving problems based on facts and data on the outset, the involved manager is not able to step out of the involvement whole, he/she just is.

Underlying assumptions are based on Heidegger's Dasein and Polanyi's embodiment of tools, which support the explanation behind the ambidextrous use of IS and informs the IS strategizing framework as to why the use of exploitation and exploration IS may be conceived as immanent to the strategizing work. In the spirit of considering the rational and involved manager as co-existing, this research makes explicit the notion of the *ambidextrous manager* (Tushman et al 2006).

The following are suggested as secondary findings, since they were not the focus of the research, but emerged to be significant and inseparable from the key findings. These are in relation to organizational implications of managerial subsystems, which have been discussed in section 7.3.

3. Unintended consequences of subsystems back to the organizational whole

What was observed as unintended consequences were widening cross-cultural conflict and enhance political tension. The interpreted implications of these were the discussion on ongoing collective learning as of OL, and the consequences on the absorptive capacity of the OM as a whole. Furthermore, these systems were little benefit of organizational learning because they were rarely transferable. This was so because their value lied in their 'being-in-use' and their basis on personal knowledge developed in specific context, time and location, and mindset. Hence, subsystems were conceived as contextual, historical and perceptual (Introna 1997). While subsystems were used as a source of competitive advantage, at the same time, they contributed to unintended consequences in terms of inhibiting open information and knowledge sharing and transfer. The dispersed bundles of knowledge gradually created a 'them and us' attitude between units at HPC and advisory teams at PCS, which seemed to have widened the cross-cultural gap in the former and encouraged politically-driven decision processes in the latter case. The reliance on subsystems seemed be a major influencing factor in the OL and development of the OM. In order to make the subsystems 'transferable' to other managers/advisors, first there must be a common basis in terms of approaches to sense-making in the communicative context.

At the same time, we argued that subsystems could be the result of an already existing organizational milieu and lack of enabling IIs. The research argues for a circular dynamics, e.g. a feedback loop of ongoing consequences, between the organizational context

(including the socio-technical II) and the ways in which IS were used by strategic actors. An interesting implication is that, although subsystems may enable the executive to act intelligently, these manners of using IS may not foster *organizational intelligence* (Choo 1995) in the long haul because these inhibit the diffusion of practical know-how. At the same time, subsystems were not really strategic IS (SIS), but IS, which sometimes (and often) showed themselves more or less of being 'strategic' while these were being used during sense-making processes across various contexts. As a result their unconscious (withdrawn) existence and use, the potential long-term adverse affects on the organizational level were not as explicitly noticed as their immediate and short-term benefits to decision-makers. By the time subsystems had manifested themselves as ongoing and integrated parts of managerial decision-making, the consequences on the organizational level had already been going on and shaping the socio-technical II.

Before arguing what this all means to the IS strategizing framework, some pointers as to how the findings attempt to contribute to an extension of the framework and expand our understanding in the social study IS. The figure below shows the integrated view this research has taken on strategizing, IS, and strategic actor's involved mindset and being.

(iii)
Strategic actors dwelled/involved in the strategizing whole, i.e. socio-technical organizational context and external environments

(i)
Business strategizing – Subsystems interrelation:
Use of IS and personal knowledge as embedded and embodied in strategizing; as parts of the same activity

B
Ambidextrous Approach to strategizing

A
Strategic Actor as involved manager and integrated IS mindsets

C
Synthesis of bottom-up and top-down IS Ambidextrous use of IS

(ii)
Subsystems – Strategic actor interrelation:
IS as embodied in human thinking/seeing/doing. i.e.
Integrated IS mindset

Figure 7.9: View on IS, strategizing and strategic actors as parts of the same involvement whole

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Figure 7.9 implies ambidextrous use of deliberate and emergent IS (C), as part of ambidextrous strategizing processes (B), by the involved manager (A). We explained 'C' exists because of the nature of strategizing in 'B', and because of the assumptions of the involved manager 'A'. The human agent is dwelled in the strategizing whole (iii) where he/she uses various IS as part of the sense-making process (ii), while incorporating new information, interpretations and changes from the environment (i). Notably, the three concepts are meant to be seen as parts of the same whole, and as always already existing and interacting. The figure suggests a different ontology to the familiar debate, namely the use of SIS and strategic alignment of these with business strategies.

The crux of the argument has been that although managers had the desire to be rational and in control of their decisions, in actuality they were 'thrown' in the strategizing world, not because of choice or decision but by default. This perspective contradicts the conception that with all the right information and strategic IS, the rational manager will make the right decisions and increase his/her performance. The consideration of the strategic actor, with respect to the underlying assumptions behind the involved manager, is seen as enrichening and complementary to the debate in strategic management and IS. Most specifically, it proposes an integrated view on traditionally different ontologies with regards to the human agent at rational and involved in practice. The assumptions of this view are profound to the conceptualization to IS strategizing in general and to the framework. It is argued that the consideration of different ontological perspectives to the same problem situations provides a very powerful way to understanding the problem situation better, than applying different models and frameworks coming from the same world view, 'school of thought', or 'paradigm'. While various frameworks may be insightful to a particular situation, even the most flexible framework might easily lose its validity when the context changes.

Chapter 8 will now consider the implications of these arguments on the contributions of this research.

CHAPTER 8   CONCLUSIONS

This chapter provides an overview of the main arguments, suggests contributions to theory, practice and methodology, and points out the challenges and limitations encountered. Based on new insights drawn, the researcher suggests topics for further research.

8.1 THESIS OVERVIEW & CONTRIBUTIONS

A central argument of this thesis has concerned the use of IS in the context of competitive strategizing. The thesis has addressed the dynamic interaction between managerial work and the socio-technical organizational context. The literatures informing the research were taken from the fields of Information Systems, Strategic Management and Organizational Theory. These literatures helped to highlight the interdependence between IS, strategizing and strategic actors on the managerial and organizational levels. The IS strategizing framework served as a sense-making device to navigate this multi-disciplinary inquiry on conceptual grounds.

Managerial work was described as dynamic and hectic, consisting of constant interruptions and substantial exchange of oral information which have to be processed and made sense of in the face of changing organizational context and existing experiential knowledge. Managerial work was examined in terms of strategizing and throughout the thesis, different assumptions provided by the literature were examined in terms of intentions, emergent and dwelled. The thesis started with defining strategizing as a complex and unstructured process of decision-, sense- and judgment-making, involving personal knowledge (Polanyi 1966), management information (Introna 1997), and data. The conceptual distinction between information and

knowledge was established. Information was associated with the meaning imputed to data when it is evaluated from the human agent depending on their mindset, interpretive framework and contextual conditions (Sanchez 2001; Davenport et al 1998). The dominant view that was considered conceived management information as 'management understanding in-the-world, in-order-to get the job done' (Introna 1997: 156). Knowledge was discussed from multiple perspectives in chapter 2 and regarded as transient and a core ingredient of ongoing strategizing. A central and intrinsic argument in this thesis has been Polanyi's assertion that 'we know more than we can tell' (Polanyi 1966: 4) in order to draw deeper meaning from the human agent's use of IS in strategizing.

In this context, decisions were viewed as building blocks of strategizing that play a major role in determining the strategic direction of organizations (Mintzberg & Waters 1983). Furthermore, these were said to being influenced by managerial *Vorurteile* and mindsets, as well as organizational dynamics. Managers were viewed as embedded parts of organizational socio-technical systems. Strategy and the role of ICTs as a source of competitive advantage have been criticized for being non-reflective and based on prescriptive managerialism. A holistic view on strategy was discussed based on Mintzberg's work on the emergent characteristic of strategy. In the field of IS, Ciborra, among others, argued to put aside traditional views and look closer at the everyday life of managers, which is made up of 'frustrations, accomplishments, gossip, confusion, tinkering, joy, and desperation' (2004:19).

The research also considered the practice theory of strategy (Whittington 1996; 2003; Jarzabkowski 2005) as appropriate, as well as the situated view on strategizing (Suchman 1987) in relation to Introna's (1997) application of Heidegger's existential phenomenology to the IS domain. Emerging questions considered the use of various forms of IS by human agents in the messy process of managerial strategizing, which opened up the discussion on what makes an IS strategic, how can IS become more *useful* to the more tacit dimension of the strategizing process, and what are the organizational implications of the ways managerial IS are used? According to Orlikowski (2002), strategy as practice suggests that knowledge is an ongoing accomplishment, constituted and reconstituted as actors engage in the world. While Mintzberg's research on emergent strategizing is an important point of departure, it does not elaborate how a patterned consistency of action (despite lack of intention) emerges. This research attempted to address this gap by referring to supporting theories to reach an explanation (notably, not the only or a complete one by any means). Here, the explanation centred around the meaning of strategy as dwelling and as immanent in action (Chia & Holt 2006).

The research examined the relational interaction between the components presented by the IS strategizing framework. Furthermore, the significance of context in which human agents and IS are embedded was highlighted. The relationship between context and knowing was depicted well by Blacker (1995), who claimed that knowing occurs via a combination of organizationally and biographically embedded contextual components, which demands a more sophisticated conception of context. The whole purpose of analysing the concept of strategizing was to better understand the role of IS therein. It was found that the use of IS and ICTs, as used by managers and advisors, could be seen as driven by a particular attitude towards problem solving, thinking and doing (Wittgenstein 1956). Inseparable from the structure they work/dwell in, infrastructures were regarded as a formative context which sets pre-existing institutional arrangements, frames and imageries that actors bring and routinely enact in a situation (Ciborra & Hanseth 1998).

The empirical work consisted of two case studies. A two- instead of a single-case approach was chosen to acknowledge and bring out the context specificity and embeddedness of the subject matter. While most research tries to isolate the object under study from other influencing factors for the sake of clarity, this research emphasized the significance of factors in the use of IS. A qualitative methodology based on semi-structured interviews enabled the collection of data, which informed as well as challenged the theoretical basis of the research inquiry. The empirical investigation considered the German and US-based operating units of a leading hydro-power generation company (HPC), and a US subsidiary of a private bank (PCS). In both cases, the ways in which IS were used were explored on the grounds of their competitive strategies, which concerned aggressive business development to improve sales growth performance. The theoretical framework was used to distinguish between deliberate and emergent IS, their interaction with elements of information infrastructures (IIs), and the integration of change management. On the organizational levels, while the dominant IS in strategy at HPC was centered on person-to-person communication, or socialization, the dominant approach at PCS was around top-down centralized IT-driven IS.

Several aspects made the comparison interesting. Both are leading enterprises in their respective fields, both are product-based companies that had moved into integrated services, and the knowledge work in both was cross-functional and multi-national (to limited extent). A closer look indicated the struggle with formal and informal mechanisms in the organizational socio-technical setting (Land 1991; Ciborra 1993; Orlikowski 1992; Bjoerkman et al 2004). Specifically, both showed a conflict in their managerial and organizational IS, which had led to managerial advantage, but to organizational consequences.

On the organizational level, a major challenge in HPC was to tap into the knowledge locked in individuals' minds through social networking initiatives designed to enable transfer of know-how and ongoing learning between foreign units. On the managerial level, HPC had to juggle conflicting demands, and to coordinate decision activities and prioritization. Furthermore, organizational change was considered to be an inevitable and inherent part of strategizing processes. Despite different designs and compositions of organizational IIs, the manner in which senior managers/advisors leveraged information and knowledge through systems were similar. The following were found to be common in both cases:

- Managerial subsystems indicated ambidextrous use of IS in strategizing (Chapter 7.2)
- Unintended consequences of subsystems on the organizational level (Chapter 7.3): cross-cultural conflict in HPC and political tension in PCS.

The term ambidextrous strategizing was used to describe the way managers used information, knowledge and systems in order to get the job done in the daily coping. Here, IS was characterized as simultaneous use of deliberate and emergent resources to gather data, information, and knowledge to create, or make explicit, meaning and clarity in particular situations. It was argued that the ambidextrous ways of strategizing had overtime manifested themselves into subsystems, personalized repositories of filtered and relevant data, information and knowledge created or gathered from formal and informal sources. The subsystems were seen as personalized 'toolkits' to support managers in the process of sense-making and meaning generation of messy situations.

The identification of subsystems despite existing organizational IS suggested an ongoing conflict between managerial IS and organizational IS, two separate systems that would not 'talk to each other' (Interviewee 4, HPC) and lead to ineffectiveness and inefficiencies on organizational levels. It was observed that despite existing strategies, the *uncertainty* about external and internal conditions, fast changing environments, technologies, and relationships would mean a constant reinterpretation of the meaning of any given information. This required constant readjustments of underlying factors that shaped decisions. This state encouraged a deep level of involvement of managers in the situation, (see chapter 2 for strategizing in dwelling terms), and so a need by managers to create some *certainty* in their daily coping. In response to this need, subsystems were perceived as vehicles to meet the need of being control over information, events, and ultimately their performance in the organization. This sense of certainty that came with the ownership of individual subsystems gave managers the perception that they are coping with uncertainty and chaos.

The implication of such systems is significant to the field of IS as well as to practitioners. While corporate IS are designed to serve the organization as a whole, or 'the common good' for the sake of simplicity, these did not seem to serve individual managers.

Two different ontologies were considered in the interpretation of subsystems. While one interpretation implied that human agents act as rational beings and use IS as a strategic resource to meet a goal, the latter view interpreted the 'strategic' attribute or value of IS in terms of their immanence in the strategizing *process* in their particular context, time and their embodiments with human agents' being, thinking and acting (Polanyi 1966). The meaning of immanent itself, from a phenomenological stance, implied an alternative (preferable complementary) meaning to 'intent' in adaptive action. As discussed in chapter 2, the dwelling view on strategizing resonated 'an internalized disposition to act in a manner congruent with past actions and experience' (Chia & Holt 2006:635).

It was argued that the *usefulness* of IS may be brought to surface through the ability of managers to use IS in ambidextrous manners while being involved with the problem at hand. Despite different organizational IS at each company, managers in both cases used subsystems to guide their decisions in strategizing processes. It was argued that the way of everyday coping had become manifested in the existence of subsystems over time. Thus, subsystems were interpreted as a reflection of ambidextrous ways of strategizing and a way to compensate for the shortcomings of the organizational IS. These seemed to be flexible in accommodating changing requirements of the strategizing context and process. While subsystems served managers to get the job done with perceived efficiency, at the same time, they revealed adverse consequences on the organizational level.

Nevertheless, the focus has been on interpreting and explaining subsystems as ambidextrous IS. This was interpreted as follows:
- Strategizing processes were described as unstructured, unpredictable, and continuously changing. Here, managers combined both emergent and deliberate strategies to meet top-down corporate demands and emerging challenges in the every coping.
- Most of the management information and knowledge were seen as immanent to the messy strategizing processes and context. Hence, managers used deliberate and emergent IS in ambidextrous manners. These were referred to as subsystems.
- The prevalence of subsystems was associated with the strategic actors' integrated IS mindset. This research now refers to the already involved managerial IS mindset as an attribute of the *ambidextrous manager* (Tushman et al 2006).

The analysis took further depth by examining the usefulness of subsystems in the context of competitive strategizing using Introna's interpretation of Heidegger's and Polanyi's concepts. Subsystems were interpreted as situated use of equipment, or *Zeug*, which are always *already to hand* (Heidegger 1962), or immanent, to coping with emerging challenges in strategizing processes. In contrast to what is prevalent in the management discourse, subsystems were suggested to be IS used through comportment rather than intentionality. This comportment shed light on the use of IS from a state of *being-in*volved the context.

Central to this argument was the notion of *Dasein* (ibid). Human agents were seen as dwelled in the strategizing world, like fish in the water, and where these become one with their habitant and the just 'is' (Introna 1997: 29). This level of submersion of the human agent in the context, and the level of embeddedness of subsystems in processes and their embodiment in the human agent, made them as if they were withdrawn from the explicit attention (or focal awareness) of the strategizer. This perceived withdrawn-ness, or their immanence in thinking, interpreting, deciding, and acting, constituted the strategic attribute of the IS. Subsystems were not 'intended' to be used as strategic IS, but showed themselves as strategic through the strategic ways in which they were used by the ambidextrous manager in particular situations. We implied that it is the actor who gives the IS its strategic-ness through his/her personal intelligent involvement in navigating the situated-ness of the moment. This is argued to be an attribute of the ambidextrous manager. Thus subsystems were interpreted to be an extension of the managers' involved and integrated mindset – hence a reflection of the manager's capability to be ambidextrous.

The arguments are summarized below:

- Involved managers are dwelled in the situated-ness of the world and cannot step outside their own existence.
- In the dwelling, they simultaneously use deliberate and emergent IS in ambidextrous manners. These were interpreted through comportment instead of intentionality.
- The assumption behind comportment was to argue that personal knowledge is immanent to the person, and IS are immanent to business strategizing. Both became extensions of the body while being-in use.

This study acknowledged that, in the context of competitive strategizing, IS takes a meaning far beyond the deliberate use of ICTs. The prevalence of subsystems indicated that strategizing is ever changing, ongoing and processual, unpredictable and involves conflicting demands. It also implied that knowledge is generated and accumulated through action in specific context.

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This context called for flexibility in order to be efficient. Personalized systems enabled managers/advisors to leverage deliberate and emergent IS by filtering key information and combine these with their personal knowledge. Since this knowledge is tightly linked to personal knowledge, its accumulation and interpretation is dependent on individual actors (Daft & Weick 1984; Daft & Huber 1987). What contributes to the differentiation of managers' skills is the tacit knowledge they develop over time. This is to some extent non-communicable and hence contributes to the 'uniqueness' of the opportunity of each individual in the firm (Penrose 1959: 52-3). Hence, the path-dependent, context-specific nature of knowledge made subsystems very specific to the individual user.

Chapter 2 argued that communication involves the interaction of people with different approaches to sense-making and sense-giving, whose tacit knowledge has been developed differently (Hustad 2004). Sense-making is a largely tacit process and emerges in action while being involved in the process. There is a high degree of customization involved – 'you've got to understand the process' (Interviewee 5, HPC), and 'you need to have the right people on board' (Interviewee 1, PCS). While subsystems seemed to provide competitive advantage to managers' specific working knowledge, at the same time, these made it more difficult to share and transfer knowledge internally, leading to unintended consequences. For example, we talked about how subsystems discouraged the free flow of information and knowledge between teams and units, and so inhibited ongoing learning. The implication of such unintended consequences between the managerial and organizational levels were seen as mutually reinforcing, whereby managerial attitudes towards the use of IS would affect the future of strategizing processes as a whole. HPC struggled with knowledge transfer across the German and US units due to architectural and cultural challenges, and different management thinking. PCS lacked an enabling organizational culture for knowledge sharing, with the exception of the A-team which was actively involved in intense communication lead by strong leadership.

This 'uniqueness' of individual skills also led to political controversies and an 'information is power' attitude in the workplace, reinforcing resistance to sharing information with colleagues. Hence, subsystems had the potential to be used as bargaining power, not as explicit tools per se, but as a basis which supported the comportment of managers/advisors, which moved towards a competitive rather than a collaborative involvement. The emerging challenges affected ongoing OL and OM. For example, the culture that the use of subsystems encouraged was not friendly to openness and sharing, and promoted the use of information as political tools to

enhance bargaining power for resources. Consequently, the rate of trust among colleagues diminished (Sambamurthy & Jarvenpaa 2002), and so inhibited OL in the long term.

Nevertheless, the centrepiece of the thesis turned out to shift focus from valuing resources (IS) towards valuing resourcefulness of human agents as a source of competitive advantage. The human agent was referred to as the 'strategic actor' - shifting the focus from IS as object (i.e., equipment), used as part of comportment, to human agent's being and attitude towards strategizing. It was argued that managers, who leveraged IS in strategizing in ambidextrous ways, had an involved mindset (as of attitude or being) which allowed them to become more resourceful as environments changed and uncertainty grew. An involved mindset implies that IS/IT are not seen separate from strategizing, which can be aligned or even integrated.

This research viewed IS as they presented themselves in practice, where their *strategic-ness* became explicit only in the ways in which human agents used them while involved in the process of strategizing. An involved perspective implies that IS and strategic IS are just what they are. IS will have a strategic importance then, when they become one with the thinking and doing of human agents, i.e. when they become embodied with people and embedded with processes. Once they are part of the same whole (which is assumed that they already are), then the direction of the strategizing towards 'success' or 'failure' would depend on the *resourcefulness* of the manager, not much on the IS (assuming IS are functioning are they are programmed). The implications of this stance are significant on the conceptualization of IS, specifically on the term strategic IS. The figure below relates the new arguments to the theoretical framework:
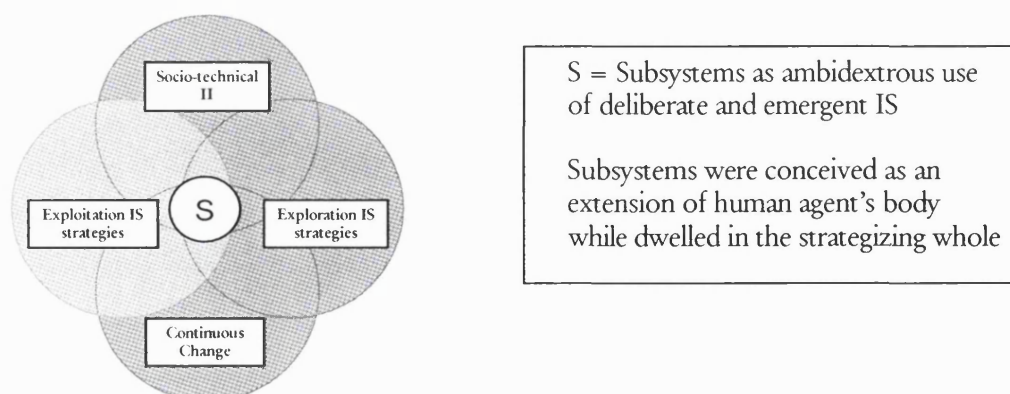

Figure 8.1: Subsystems as a result of ambidextrous use of IS as involved in strategizing

In the case studies, managers/advisors were not always consciously aware of the particular IS, but they used IS in manners consistent with the process of strategizing, decision-and sense-making as part of the involvement whole. The attitude of managers/advisors at PCS and HPC towards the usefulness of corporate and centrally available IS were alike. They implied that the sheer amount of information out here, and the uncertainty around managerial work and decisions would make it difficult to use standardized IS as the major resource on continuous basis. Regardless of corporate IS, whether top-down or bottom-up, centralized or dispersed, codified or personalized, managers/advisors manifested their knowledge gained from their personal involvement in praxis onto their subsystems, resembling personal information and knowledge repositories gathered from their unique networks. Managers constantly modified and updated their subsystems to accommodate daily changes in the internal and external environments. This was a process based on filtering and interpreting information to make sense of new environments. The implication of these arguments are that in order for IS to be effective, the consideration of the micro-level strategizing processes, the personal knowledge, and the mindset of the involved manager are determining factors, regardless of the quality or quantity of corporate IS. This also implies a shift in focus from strategic IS to strategic *use* of IS as part of the strategizing process.

Simply said, subsystems provided them with personalized toolkits, which they were so familiar with, at the level where the subsystems would become 'withdrawn' from the immediate attention and the conscious effort of using them. Hence, subsystems formed an extension of the manager's knowing, and became part of, or one with, the resourcefulness of the manager. The content of the subsystems was driven by the managers' access to human and systems networks, experiential and praxis-driven knowledge (moreover the ability to generate meaning and value from any given situation). Here, meaning cannot be separated from context and the sphere of human interaction. It is along these lines where the research asserts that the 'strategic-ness' of any given IS lies within the situated involvement and resourcefulness of the involved manager.

Consequently, it was explained that it was not appropriate to think of IS and business strategies in terms of separate entities which can be aligned. The ideas which were developed conceive the human agent and IS as parts of the strategizing process itself. The research concludes that regardless of the availability of ICT, or socially enabled networks, it is most of all up to *resourcefulness* of strategic actors and their involvement in the context which determines how IS, MI and knowledge are leveraged in the strategizing process.

Nevertheless, as with any qualitative research, arguments drawn from this research are bound to the underlying assumptions of the theories adopted, the chosen methodology, the way it was carried out, the specific time and context of the research, and to the interpretive framework of the researcher. For this reason, this research has not necessarily been portraying 'fact', but an interpretation of the identified problem situation through the chosen interpretive lenses, and in the spirit of making further distinctions to current understanding. The lessons have theoretical, practical and methodological implications. These are outlined below.

8.1.1 Contributions to Theory and the Framework

This thesis tried to avoid fixing definitions or isolate the components of analysis (i.e. information, knowledge, strategizing, IS and human agents) from each other and their context. Rather, it aimed to take an exploratory view on the shaping of the understanding on these concepts during the reiterative and hermeneutic interpretive process. Through the use of alternative perspectives, it was hoped to have bypassed the fundamental dualism, and moreover, to highlight the significance of interrelational consideration of phenomena, such as agency/structure, subject/object, micro/macro, individual/collective

From heuristic stand point, there can be no correct or final interpretation, only individual appropriations. By no means was there an attempt to form generalizations from the relatively small set of data. But instead, it hopes to have awakened curiosity and interest into an underdeveloped but valuable ontological perspective to the IS domain. The researcher takes the view that, specifically in the context of interpretive research, making generalizations based on subjective set of data would not be as meaningful as to communicate new distinctions made and the value they could have to the furthering of our understanding of phenomena.

This thesis has been one of the first to apply the most recently amended framework across different cultures and contexts in competitive strategizing. It goes some way in confirming the utility of the framework, and moreover, it proposes a new perspective based on the analysis. This new perspective is based on the inclusion of the alternative ontology and suggests an extended representation of the framework.

The framework was useful in many ways. It invited the exploration of emerging issues in a field that is dominated by objectivism and structurism. Interestingly, the focus of the research naturally shifted from organizational-level IS towards managerial ways of coping with the

everyday challenges. One of the first realizations was that the framework does not seem to distinguish between various levels of analysis. This may be a limitation or a benefit, depending on the research inquiry. In this research, the framework proved to be flexible enough to allow navigation between organizational and managerial levels. At the same time, it must be said that while various levels can be distinguished conceptually, in practice, they are blurred and hard to delineate. In the case studies, senior managers perceived both levels as parts of the same context. This implies that the framework can be used on both levels to bring together the micro and macro levels of inquiry.

This research found the interrelatedness and integration of the components (rather than their separation) as a valuable feature of the framework (cf. March 1991; Galliers & Newell 2003; Benner & Tushman 2003). For example, IS was perceived by managers as most valuable when they were able to use them in ambidextrous ways. The argument is different from the view that knowledge and IS are 'out there' to be aligned with business and change processes (Galliers & Newell 2003). The findings in this study put forward the role of the human agent as the *ambidextrous manager*, who has the desire for control, but at the same time, cannot escape the consequences that arise as a result of their own involvements. In both case studies, subsystems were meant to increase the performance of managers/advisors.

At the same time, this inhibited effective transfer and sharing of knowledge between teams and among business units due to a diminishing level of trust and open communication (Stata 1989; Badaracco 1991). This led to further cultural distance and disintegration between organizational and managerial IS. Although strategic actors viewed the subsystems as a necessary part of managerial competitive advantage, long-term unintended consequences (Robey & Boudreau 1999) will leave traces on organizational ongoing learning and how future actors leverage the organizational know-how. It is not argued that organizations do not realize the long-term consequences of dispersed subsystem (assuming they are aware of them, and care); rather it is that those who are aware have little incentive to move away from managerial level subsystems as long as these managers are meeting 'the bottom line'.

Nevertheless, any contribution this research proposes will be within the research context and methodology. Theoretical contributions are directed to the IS strategizing framework by suggesting the following:

1. Ambidextrous use of IS: conceiving IS as already immanent to strategizing process and embodied to the users (managers);

2. The central role of resourcefulness: the purpose behind the ways in which ambidextrous managers use IS.

1. Ambidextrous use of IS: Integrated exploitation and exploration IS

Due to unstructured nature of strategizing processes (Mintzberg et al 1976; 2001), a mix of emergent and deliberate IS were required to cope with emerging changes and conflicting demands. Accordingly, IS were used in line with particular approaches to strategizing. The figure below shows the IS components of the framework as overlapping, with the assumption that they are parts of the same involvement whole. Hence, a different ontological position is suggested. Instead of conceiving the IS components as strategic IS, the various forms of IS are seen as neutral, which however, may be used in a strategic *manner*, depending on the human agents who use them. Thus, the 'strategic' attribute is argued to be up to the actors rather than the IS themselves. At least in this study, it was found that subsystems showed their *strategic-ness* (the researcher's emphasis) in the ways they were used. These ways were explained to be situated, embodied with the user's being and attitude, and embedded within involvement processes (cf. Blackler 1995).

Figure 8.2: Towards an extended view

2. **From resources to resourcefulness as a source of competitive advantage:**
This is an extension of the first argument. The ontological position of the involved manager was especially insightful in looking at the micro-level use of IS, which affect strategizing processes in a playful way (Ciborra 2000), for example how managers combine planned and chaotic (Wilson 2003) contexts in everyday coping.

Moreover, this point suggests that instead of refuting the rational view and accepting the involved view of the manager, the rational and the involved manager should be conceived as co-existing - with different levels of consciousness, however. In other words, behind every rational manager there is an already involved one. Introna's application of Polanyi's 'embodiment of tools' and Heidegger's phenomenology are seen as explaining the 'why' and the 'how' behind the ambidextrous IS in strategizing

The new understanding in this research emphasizes the *resourcefulness* of the manager and suggests a new meaning of the term *strategic* in the context of IS in strategizing. What could now be conceived as 'strategic', considering the underlying assumptions of the involved manager, implies a shift of focus from any form of IS towards the human agent, and specifically, the form of relationship between the human agent, IS and their context. The discussion often referred to the strategic *use* of IS, rather than the use of strategic IS. (Notably, the term strategic actor was used to refer to the strategiz*ing* actor, with no specific reference to the involved or rational mode of being).

This is the point of departure to assign a new distinction to this understanding of IS. The extension of the framework will centre on the human agent's situated *resourcefulness*. The meaning of resourcefulness resonate a dynamic combination of personal and experiential knowledge as well as the use of data and information to generate new understanding, meaning and sense-making, which comprise the basis of decisions. Notably, the research recognizes the shift from the resource-based view on IS towards viewing IS as a vehicle used by mangers to become more resourceful while being in-the-world.

The incorporation of the seemingly contradictory ontology has implications on the understanding of IS and SIS, which is unfortunately an under-researched area. The figure below suggests an extension to the IS strategizing framework to include the new analysis:
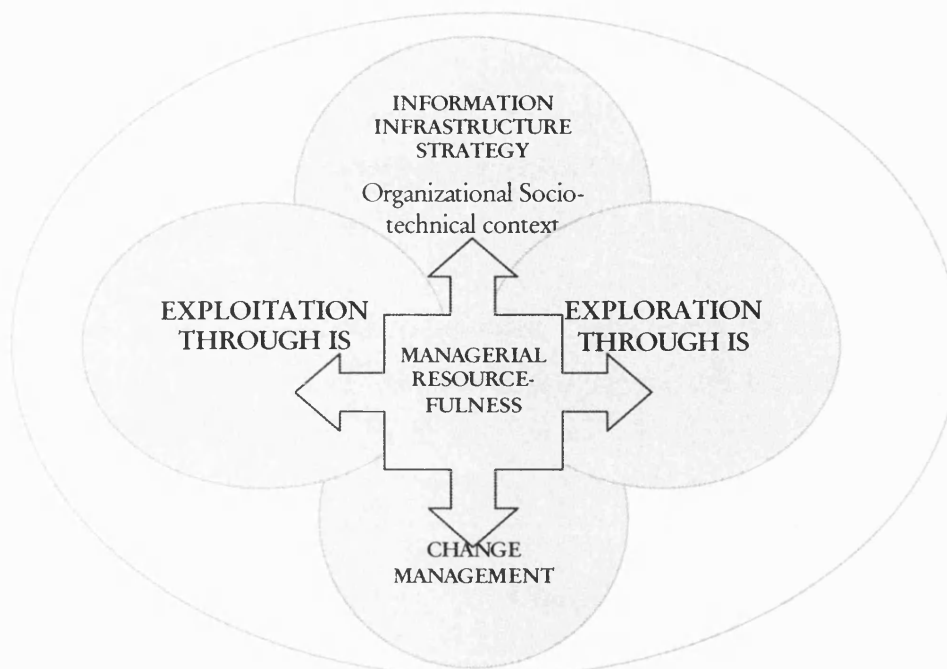
Figure 8.3: Suggested extension to the framework: Managerial Resourcefulness as the underlying drive for ambidextrous IS

Notably, the four components and the strategic actor are meant to be envisaged as parts of the same whole, rather than distinct entities. In practice, strategic actors were not conscious about IT as an object. Ambidextrous use of IS was rather an unconscious doing (at the centre of the figure below) while involved with coping, ongoing learning, and changing, rather than IS strategizing.

The inclusion of the concepts behind the involved manager attempts to contribute to the 'inside view' on phenomena and from a more primal level of analysis. At this level, the contribution becomes less dependent on the prescriptive nature of the data gathered as the analysis sought to move beyond the obvious and find deeper explanation in the heuristic process. Acknowledging Introna (1997), more empirical data would have become counter-effective and would have encouraged the reliance on more description, names and models, more abstractions and even more representations of representations in a discourse already saturated. Lastly, this calls for thinking *through* and pondering (Heidegger 1968), rather than thinking *about* phenomena.

Nonetheless, little attention has been given to this particular ontology in practice-based IS research. Along these lines, this thesis suggests an involved view on IS, human agents and strategizing, viewing them as existing in tandem. The research proposes that it is more the situated resourcefulness of human agents, which brings out the strategic-ness of IS.

In addition to the main contributions, secondary contributions are suggested from the findings stemming from chapter 7.3, which addressed the implications of subsystems in the organizational context.

3. **Cross-cultural differences and IS**

It became evident in HPC, that managers in different cultures had different views on how IS can support their decision-making processes, and so had differing perceived value towards IS. While the literature makes distinction between 'Western' and 'Asian' cultures (e.g., Nonaka & Takeuchi 1995), it often assigns similar attributes to European countries and the US by categorizing them under the same 'Western' culture umbrella. For example, German managers had very different world views on IS than their US counterparts, even to the extent of the use of online communication platforms, such as e-mail. This relates to the underlying assumptions and logic of the applicability and purpose of an equipment/object. The German way of working, sense-making and sense-giving was so different at HPC units that it became a central issue of organizational conflict. A key senior manager left the firm during this study as a result of long time conflict in reaching consensus with regards to ways in which particular strategies were handled. While there was limited room for an expanded discussion on cultural elements, future research could explicitly focus on the cross-cultural aspects towards using IS in strategizing, and to usefully explore the presence and practice of ambidextrous IS among senior managers across various business models and organizational structures.

Furthermore, social networks (Hansen 2002; Tsai 2001) work very differently in different cultural contexts due to different worldviews, mindsets and ways of communicating. The same assumptions about how social systems should work may not be applicable across cultures. This implies that universal models and conceptualizations of person-to-document, as well as person-to-person IS strategies may not be as relevant outside of the context in which they were developed. Despite continuing developments in ICTs, there remain challenges even among the more 'simple' and established technologies. Further research is necessary to encompass some of the taken for granted cultural elements that affect the attitude of strategic actors in the ways in which IS are used in strategizing.

4. **Implication of subsystems on ongoing learning and organizational memory**

One of the findings that emerged was that the manner in which IS were used by actors have consequences on the shaping of OM. In the two cases, OM was an important

influencing factor in the ways in which messages were interpreted, and where a culture of openness and trust could be built and maintained. Ultimately, the ways in which OM is shaped potentially influences IIs to become enabling or disabling. This is a subject that needs to be examined in more detail in relation to individuals' contribution to the shaping of OM through the *unconscious* use of IS. As a study of OM was not the centre of this research, it cannot be commented on it further. However, it was found that the use of subsystems on the managerial level affected the nature communication between actors in the wider organizational context in terms of open knowledge sharing and transfer. The implications would be seen in organizational ongoing learning from experienced members and how much of this learning becomes embedded in the OM over-time. Further research as to how managerial IS, such as subsystems, would affect the transfer of know-how and the absorption in the OM is an interesting field to be investigated.

As the research used the framework as a sense-making device (Weick 1995) to navigate the inquiry, it also helped to make contributions to research methodology.

8.1.2 Contributions to Methodology

This study employed interpretivism with qualitative data collection methods. Interpretivism was a challenging but rewarding choice. It allowed the researcher to go under the surface and research those aspects that the rigidity of dogmatic and quantitative approaches does not permit. The use of the IS strategizing framework in combination with interpretive methodologies and principles of the hermeneutic circle provided a powerful combination. It allowed the researcher to critically explore the chaotic disorder of practice, to inform and research relevant bodies of knowledge, and at the same time, remain focused within the parameters of the framework. The hermeneutic circle made the analysis a highly iterative process between *text* and *praxis*. This involved analyzing, questioning, sense-making, and re-examining assumptions in the light of the IS strategizing framework, supporting theories, and findings from observation, formal interviews, informal conversations, etc. Although this seemed a never-ending process, it allowed the researcher to draw upon further distinctions and develop new insights, and make better sense of the complex dynamics of the conceptual concepts in their subjective context.

Although interpretivism does not provide 'hard facts', it accounts for the emerging elements that an objective research would dismiss. While interpretivism does not always fill the gaps in understanding, it helped to portray a more realistic picture of organizational realities. For

example, on the surface, the strategizing processes and the relevant use of IS seemed quite orderly to the outside observer. Until, however, observation unveiled the disorder underneath the work processes and muddling through the daily messiness (Ciborra 1997). In that sense, interpretivism allowed the researcher to embark on deeper levels of socially constructed order, the rationality behind layers of disorder and irrational actions. It can be implied that interpretivism is to some extent an attitude towards sense-making and a skilful approach to drawing meaning from externalities. Nevertheless, it is not only the methods or methodology that is important, but also the ability of the researcher to skilfully capture the essence from chaos and disorder. Having said that, this research appreciates the philosophical underpinnings of hermeneutics while being aware of the limitations.

In line with this, and despite the paradigm incommensurability argument (Burrell & Morgan, 1979)the research found value in the integration of ideas from the strategic management literature as well as from philosophy (for example referring to phenomenological perspectives used in the social study of IS). Although traditionally opposing ontologies, the researcher found that combining profoundly different interpretive tools is a powerful way to draw upon new distinctions of the same problem situation. Again, the strength of interpretivism in this research was to allow this to happen.

8.1.3 Contribution to Practice

This research topic originated from an intellectual curiosity to explore practical concerns on solid conceptual grounds. It is hoped that the research was able to provide alternative explanations to the problem domain and spur more fundamental questions in future research.

The identified concern in practice was the confusion of senior managers as to why they cannot reach consensus in their organization when it came to strategic decision-making. Furthermore, due to the conflicting information coming from various sources (e.g., consultancies, industry reports, executive coaches and academic papers), senior managers seem constantly to find themselves at a crossroad of multiple 'solutions'. However, it is increasingly difficult to identify the real source of the problems. As some blame the lack of consensus building on a lack of leadership (a source of frustration in PCS), others blame it on a failed attempt to integrated supportive technologies (ERP systems in HPC). Yet others see cross-cultural differences as the source of the problem.

The contribution to practice has been to draw finer distinctions and create a richer understanding of the role of IS in strategizing. Practice-based contribution of this research suggest a new way of looking at the strategic attribute and usefulness of management information and knowledge systems used by senior managers in daily decision-making processes. Potential contributions can be outlined as follows (these should be seen as mutually re-enforcing):

- A more detailed cross-cultural consideration of how managers of different cultures integrate IS in strategizing may help to mitigate some of the socio-technical problems when introducing standardized IS, i.e. ERP systems across different locations. The case of HPC suggested that first it is necessary to foster common managerial practices based on integrated mindsets before embarking on IT investments.

- Hence, regardless of the sophistication of an IT system, it is suggested that the attitudes, willingness, and the situated intelligence of users are determining factors for the successful integration of an IT in organizational strategizing.

- This research suggests that in strategizing, IS shows its strategic value when it is perceived as *withdrawn*, i.e. hence the use of subsystems. In order for it to become withdrawn, it has to become one with the user's mindset and ways of sense-making. Hence, the more tailored and flexible a system, the higher the probability for it to become withdrawn in practice, hence, the more strategic this would become.

- This research raises awareness that not only is an 'IS mindset' specific to, but also situated in the context, time and mood of the human agent (i.e. Ciborra 2001 on 'In the mood for knowledge'). This consideration is significant when devising an enabling knowledge sharing context, i.e. through bottom-up IS.

Reflecting briefly on the cases, HPC's decision to implement ERP modules was enforced by the CEO in order to keep up with the competition. Most German managers interviewed did not directly oppose this; however, they did focus more on potential problems than potential benefits. The decision was regarded as a heavy investment and they just 'hoped' that potential benefits would outweigh the problems. On the other hand, US managers had been waiting 'too long' for a new technology to 'solve' their strategizing and IS problems. Their focus was on the benefits rather than potential risks. Overall, among the US colleagues, there was the perception that once technology is successfully implemented, efficiency in consensus building follows automatically. There is plenty of research verifying that most often senior managers pay attention to IS when there are hard facts about measurable profits. What most general

managers did not realize is that a strategic IS had already been existing in their involvements and embodied within their decisions and actions, i.e. managerial subsystems. Not being aware of the hidden power of subsystems, many of the organizational conflict could not be explained. Nonetheless, no one single element can be 'blamed' for existing organizational problems, as it is the interaction of many elements over time that shape the milieu.

PCS showed that even when ICTs were working well and aligned with core business processes, the lack of guidance about using the systems, and the sheer volume of information and applications led to a perceived diminishing return of IS. Eventually, advisors did not use much of the centralized IS in their decisions. Furthermore, IT-enabled social systems that attempt to connect knowledge workers did not work well without consistent reinforcement and the inclusion of leaders. While the corporate culture encouraged knowledge sharing, ironically, since knowledge is at the same time a source of bargaining power, the quality of that knowledge shared was compromised.

This thesis demonstrated that treating IS as an object outside the involvement whole highly undermines the power inherent to IS, which it already is having on strategizing processes, decisions and on strategic actors. The ways in which IS are used are far reaching in affecting decisions and the organizational dynamics. Furthermore, the unintended consequences springing from the use of IS have extended effects on an enabling or disabling information infrastructure, on reinforcing politics or collaboration, and eventually on 'the bottom line'. Hence, IS from an always already involved ontology is seen as the essence of what the strategic management literature has been rationalizing and the practice has been objectifying. This study also demonstrated that the IS strategizing framework has been useful to practitioners in thinking about the interaction of various IS elements in their strategizing work. It helped them to step outside their involvement and reflect upon finer distinctions.

The findings and analysis inevitably lead to further questions. Some of them are as follows: How interdependent should executive IS and organization-wide IS be, given different information needs, requirements, and purpose of use? How could the *usefulness* of management IS be addressed to serve the daily strategizing work better? What comprises the strategic aspect of IS? To what extent should managers use personalized IS, separate from organizational IS? To what extent could standardization of systems encourage and facilitate information and knowledge transfer and sharing without compromising the personalized nature of IS? To what extent do different cultural values and assumptions shape the ways in which personalized or standardized IS are formed? Could there be some cultural attributes that allow complete

personalization of systems but not at the cost of drifting away from a knowledge sharing mentality?

The next section covers some of the limitations and shortcomings of the research process.

8.2 CHALLENGES & LIMITATIONS

The researcher has been aware of several limitations inherent to conducting qualitative research in the social study of IS on theoretically, methodologically and empirically levels.

8.2.1 Limitations Due to Theory and Methodology

There were many challenges inherent in the complex nature of the topic itself. The literature is rich with perspectives and approaches, where different perspectives and definitions can be supported and criticised in various ways, depending on which lenses one uses. At the same time, theoretical concepts and generalizations have definitions, which are context specific and are subject to different interpretations according to different societal settings, histories, traditions, experiences, cultures, and practice. Although this research did focus on a certain set of definitions, it also agrees with the argument that the narrowing down of complex phenomena into single definitions would bind the researcher to a set of assumptions, which again, affect the conclusions drawn.

A theoretical challenge has been that the tacit, intangible and socially unconscious nature of it is never completely observed and objectified by either participants or observers. The intangible elements may never be completely accessible and the tacit may never be made completely explicit. People cannot step out of their worlds, or objectify them in a supreme action of reflection (McCarthy 2001). At the same time, a well-defined focus of the research scope was necessary in order to develop the sensory acuity for exploring complex social reality. Notwithstanding, the very meaning of knowledge has evolved throughout the course of this research. While the philosophical roots remained fairly consistent, modern conceptualization has been reconstructed as a way to fit in new topics and market new ideas business books. While emerging perspectives are credible in the context in which they are presented, it was important to keep a critical eye on the topic overall.

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8.2.1.1 The IS Strategizing Framework

The framework was used a way to structure the interviews and makes sense of the data during the empirical work as well as during the analysis. While the components of the framework helped to organize the findings and responses from the interviewees, it also revealed some limitations to the analysis within the particular scope of this research. For example:

- All encompassing, sometimes difficult to remain focused on specific components
- Seems to tackle organizational-level IS concerns
- Component-based representation of the concepts may be perceived as somewhat objective in the messiness of managerial strategizing
- The underlying assumptions encourage strategic management thinking, which may lead to a cause and effect based analysis.

The framework encompasses many concepts. One of the challenges during the interviews was the difficulty (on the part of the researcher as well as interviewees) to remain focused on the research topic and not drift towards related issues. There were instances, where the risk was high to drift into subjects that were important, but not part of the initial agenda of the research inquiry, such as power and politics in strategizing. Taking note of emerging issues as a result of the exploratory opportunity was a process of learning and growing as an interpretive researcher.

The researcher repeatedly encountered during data collection that managerial and organizational level challenges were interrelated in the organizational milieu. An associated challenge was the wide interpretive flexibility of the framework. While the framework seems to be explicitly concerned with organizational level IS, it does not distinguish managerial level IS, but does not dismiss their possibility either. Given that distinctions are also ambiguous and blurry in the real world, it was difficult for the researcher to relate the empirical findings with the framework as to what different levels are concerned. Having said that, this became rather a strength of the framework in the later stages of the interpretation process, where data and literature were explored on a deeper level, rather than structuring them into a pre-structured framework.

In the interpretive endeavour of this research, another perceived limitation of the framework was the component-based view on phenomena. While it insinuates an integrated view to overcome the traditional dualism and positivism, there is still some tendency to think of real

world phenomena in terms of cause and effect, rather than as integrative or embedded. For example, managers were not really making conceptual distinction such as 'exploitation' or 'exploration' IS strategies, they were merely using the tools in their work processes with little attention to them. At the same time, it can be implied that this limitation is just a representational one.

Related to the above, the framework encouraged analysis based on concrete and objective data, for example how a specific IT may fulfil new business requirements. When the research encountered the subjectivity of dynamic managerial and organizational strategizing processes, data were not so concrete and clear cut. Thus, the research had to refer to supporting theories to explain the undercurrents (the why) of the findings. This became evident during the iterative hermeneutic process. The supporting lenses helped to make sense of the blurry and unstructured elements of managerial and organizational dynamics in praxis. For example, from the outset, senior managers seemed to be rational and the framework seemed to 'fit'. However, as the empirical work matured, many elements emerged that did not make sense. In order to explain the discrepancies and the ever incomplete picture, the underlying assumptions of the involved manager helped to explain the image of the rational manager. Hence, only after understanding the involved manager, it was possible to understand the rational manager better.

Furthermore, the consideration of supporting lenses allowed the researcher to move between the more rational strategic management thinking and the relevant philosophically-based concepts. While very insightful, it was also a major challenge to combine the traditionally distinct views on the world into a coherent understanding of the 'whole'. Nevertheless, it was found that the combination of profound different ontologies is a powerful way to gain new insights into the topics that seem to have already established themselves in the current literature. This allowed the researcher to leverage the framework even better and make a contribution along these lines. Lastly, it should be acknowledged that the application of the framework may reveal different strengths and weaknesses depending on the research scope, context, and the methodology used.

8.2.1.2 Methodology

There are inherent challenges to multi-method research approaches. Mingers (2001) points out four of them: philosophical, cultural, psychological, and practical. This research can relate to philosophical, cultural and practical challenges.

Philosophical challenges related to the fundamental assumptions each paradigm brings to the research inquiry, especially where objectivist/subjectivist ontological and epistemological dichotomies are encountered. At the same time, Mingers argues that paradigms could be permeable and possible to connect their boundaries (e.g. 'transition zones'). These challenges were faced while attempting to incorporate philosophical assumptions into the IS strategizing framework. The possibility of such connection highly depends on the context of the research and what the purpose of the analysis is. This challenge is directly associated with the practical aspects, which are discussed more thoroughly in the next subsection. The cultural challenge was in relation to understanding (i) the corporate culture of the companies before attempting to interpret the text, and (ii) differences in national cultures. The underlying assumptions of each cultural setting highly affect the meaning behind the words of interviewees. The researcher's familiarity with the German and US cultures (in the HPC case study) helped to largely eliminate most of the stereotypes and biases of each culture. At the same time, the researcher accepts that one cannot step outside the context and escape the subjectivity of her own existence.

There were also practical and theoretical challenges associated with hermeneutic enquiry. Although there has been an increasing interest in hermeneutics as a research approach in the field of IS, there is very little guidance as to what exactly constitutes a hermeneutic method for the investigation of social phenomena (Butler 1998). On a theoretical level, an apparent critique of hermeneutics is that it makes the assumptions that 'text' represents truth. As a matter of fact, the approach relies too much on the 'text' as mirroring reality. This critique has been put forth by postmodernists, arguing that humans exist within a linguistic play in which there is no absolutes, but an endlessly differentiating play of signifiers (Derrida 1982). Since the text does not bear intrinsic meaning *per se*, meaning is established by their differentiation from all the other terms in the language. As Introna (1997) notes, this cannot be absolutely true because no interpretation would be meaningful then. The reason we refer to the real world, or 'text', to extract meaning is because in some sense, we are continually inspired by that which is beyond the representation, while at the same time knowing that we cannot escape language as a means to a higher level of being (ibid). Having said that, this research appreciates the flexibility and philosophical underpinnings of hermeneutics while being aware of limitations and trying to overcome them – at least to some extent - through taking a more critical stance.

The multi-methodological approach helped to mitigate some of the associated limitations. Next to semi-structured interviews, observation, informal conversations and document review were used. Yet limitations were also associated with qualitative semi-structured interviews and

observation. Chapter 4 reflected on some of the pitfalls outlined by Myers and Newman (2007), e.g. level of entry, artificiality of the interview, lack of trust, lack of time, elite bias, Hawthorne effects, constructing knowledge, ambiguity of language, and communication problems. As addressed in chapter 4, the interview stage is an artificial construct (ibid), whereby the interviewer is actively constructing knowledge (Fontana & Frey 2000) and interviewees are constructing stories to come across as knowledgeable and rational. At the same time, while they are constructing their stories, they reflect upon issues that they may not have considered so explicitly before (Myers & Newman 2007). Interpretivism becomes especially a powerful tool to capture emerging issues during the research process.

At the same time, the interpretive approach to data analysis enhanced the subjectivity of the findings, which may be criticized by quantitative researchers for lack of concreteness. To counter argue, quantitative approaches have shortcomings also and a lack of such methods cannot necessarily be a weakness, as all is relative. There are many ways to measure and analyze data and each way makes explicit a different angle, breadths and depth of real world phenomena. The method itself is just a tool, it is neutral. It rather depends on the goal of the research. This research argues that no methodology or method in and by itself is able to capture the true reality – as any chosen methodology, at the end of the day, is a reflection of how we choose to make sense of our world. Along these lines, one should be open and not dismiss challenges and tensions to the background. Given the nature of the topic and the context within what was possible, the choices made seem to have been appropriate and rewarding.

8.2.2 Limitations in Conducting the Empirical Work

Researchers conducting empirical studies in the social study of IS and strategizing face contradictory challenges (Balogun et al 2003). As already mentioned, there were general challenges due to the nature of the topic and the methodology. There were also limitations while collecting the 'data'. It has become increasingly difficult to collect data on strategists and their practices within the fast changing context of global organizations. The work boundaries of strategic actors in both cases were broad and elusive as they undertook a range of activities and responsibilities. The inquiry involved the consideration of attitudes and actions of strategic actors within the subjective and embedded work of decision making, which made it challenging to capture what mattered to the study and what did not matter. Balogun et al (ibid) suggest that working with organizational members as research partners rather than passive

informants is a helpful step to overcome many challenges. Nevertheless, two challenges that are difficult even for experienced researchers could not be completely overcome. These were encountered during the interviews and observation:

8.2.2.1   Power Structures & Managerial Biases

One considerable challenge was to see past the data and read more into the messages respondents attempted to convey (Van Maanen 1979). Managerial biases and strategic games were played out during the negotiation of deals. While the researcher was aware of existing managerial biases, it was difficult to identify them at all times. Given the limited access to insider information, evidence-based knowledge, and lack of complete knowledge about the relationships among the members and their personal agendas, it was difficult to identify how much 'truth' was in a response (especially during interviews with more than one member in a room). This was especially evident in the case of PCS.

The role of power structures (Klein & Myers 1999) is one of the determining factors in making sense of data. This refers to the social world in which actors dwell, characterized by vested interests and limited resources to meet the goals of various actors. The researcher attempts to 'read' behind the words of the actors and identify managerial biases and personal agendas. As a way to overcome this challenge, Klein and Myers refer to the *Principle of Suspension* from Ricoeur (1976), or 'hermeneutics of suspicion', to encourage critical thinking. Advocating the philosophy of Marx and Freud, the idea is to make explicit the effects of socially created distortions in certain circumstances. While aware of certain power structures in praxis, at the same time, this method (hermeneutics of suspension) would not have been appropriate because this research was more concerned with the interpretation of meaning rather than discovering 'false preconceptions' (ibid). Generally, interpretivist researchers are sceptical as to the extent to which research can or should be critical (Deetz 1996). Regardless of any biases and politically-driven responses, the mere fact that individuals tend to give their own perspective creates biases in itself, which leads to different interpretations. In that sense, there were aspects that the researcher could not capture.

Overall, interviewees in HPC seemed to be more candid and direct to reveal their challenges, frustrations and everyday battles than those in PCS. For this reason, observation was included as a complementary method in PCS, in the hope to overcome some of the biases and the rational image portrayed by advisors during the early stages of the interviews. While observation helped, it still did not completely overcome methodological challenges, due to the

very limitations of that method itself. One inherent and evident limitation of such a method is that the research cannot observe everything at all times. The very presence of the researcher may have affected the manners in which managers conducted themselves during decision-making processes. There were no hidden cameras to capture the activities when the researcher was not present. Nevertheless, observation was used as a supplement rather than a main method. Here, the principle of suspicion appears to be a promising method but quite underdeveloped in the IS research literature. Along with the suggestion of Klein and Myers (1999), the researcher sees the value of incorporating critical theory with interpretivism in future research.

8.2.2.2 Language Barriers

Another limitation may have been posed through language barriers. The interviews at HPC in Germany and the US were in English because this was the corporate language, and also for the sake of consistency. Although no significant barriers were noticed in that regard, it cannot be denied that had the interviews been in German at the German offices, then responses and impressions may have differed. The researcher overcame possible misinterpretations by confirming certain terms in German and English, and by having knowledge of the German culture while they reacted to questions.

Nevertheless, one may study the same phenomenon with similar assumptions but across different case studies, and the results become different. This research acknowledges that the data collected is subject to the specific time window and circumstances under which a certain set of subjects, objects and processes were studied. The results are subject to the chosen research scope, focus, case companies and interviewees - as they were selected in accordance to feasibility and accessibility. Having said that, more diverse data may have had more analytic benefits in explaining and reaching understanding (Yin 2003).

8.3 CONCLUDING REMARKS & SUGGESTIONS FOR FURTHER RESEARCH

The research tried to merge recent thinking from strategic management and relevant ideas rooted in a primal level of analysis (Heidegger 1962; Gadamer 1989; Polanyi 1973) as a way to improve our understanding of the role of IS in strategizing.

Two views were illustrated which appeared to be in conflict, but were argued to actually serve human agents on the managerial level. First, the prevailing management thought emphasizes rational decision-making and is preoccupied with planning. Conversely, phenomenological understanding puts light on improvisation, the situated-ness of actions and on coping with unexpected consequences (Ciborra 2004). While the planned view regards improvisation as a tactic, or quick problem-solving, paradoxically, the coping is not a result of thinking and acting, but a medium within which activities take place (ibid). This is the place from which contributions of this research are meant to be perceived.

The analysis considered the world of practice as exploratory, uncertain and changing, which increased the need or desire of the senior manager for deliberation, intention and top down IT in search for certainty, predictability and efficiency. The case studies acknowledged this paradox to be the need for certainty through strategies, best practices and ICT and at the same time, the need for uncertainty in the form of path-dependent learning, improvisation and coping in search for new meaning, innovation and uniqueness (Ciborra 2004).

Subsystems were identified as the way in which managers dealt with this paradox. As with any paradox, there are associated unintended consequences. While subsystems served individual managers with control over information, these were not serving an open culture, knowledge transfer and organizational learning.

The research also emphasized the importance of context, actor and activity (as coping) as inseparable and parts of the same whole. IS was interpreted as a part of the meaning generation or manipulation of goals, as opposed to the assumption that human agents adopt the appropriate IT to meet their intention. A major contribution is seen in the attempt to show the relevance of traditionally competing perspectives on IS, strategizing and human agents in the mainstream IS and strategic management literatures. It showed that what appeared to be a conflict of assumptions at first was actually complementary, which also led to the suggested extension to the framework.

In this research, the circular and iterative process meant an ongoing analysis of the relation between IS and human agents on the managerial strategizing level and the organizational context. The organizational context was analyzed in terms of the observed enabling and disabling factors, and how these affected the behavior of human agents towards the use of IS.

Chapter 1 set out the appropriate definition for strategizing, information and knowledge in the context of this research. The literature supporting the underlying assumptions of strategizing in this research defined this complex concept as processual in nature (Pettigrew 1995), emergent (Mintzberg 1987; 1994; 2000) and situated (Ciborra 1994; 2004). At the same time, the research did not refute the assumptions of the rational view on strategy (i.e. Porter 1985; 1996), but argued both ontological positions co-exist and suggested to view them in tandem. It was argued that the difference between the different views on strategizing is more likely the level of analysis the researcher or practitioner chooses to focus on rather than assuming one paradigm holds absolute truth. It was in this realm where competitive strategizing in the context of this thesis was understood.

From this point of view, this research was not about tactics (or 'tacticizing'). It was argued that if the senior manager cannot recall where a particular decision started and when it ended, or when an action started and ended, then what is tactical and what is strategic? The involved manager would not find this distinction meaningful, as what seems tactical today, may be strategic tomorrow (Mintzberg 1984). Hence, the manager finds himself in a constant hermeneutic circle, constant re-evaluation of information and continuous reshaping of his personal knowledge. According to Rumelt, 'one person's strategy is another's tactics – that what is strategic depends on where you sit' (1979a: 197). According to the empirical evidence, this mode of being was argued to have resulted the existence or emergence of subsystems. Notwithstanding, the interplay between the subjective and almost phenomenological components of contextual mix make it difficult to delineate and categorize human behaviour as tactical or strategic in practice. An interesting distinction for further research is to explore the relation between strategic IS and the usefulness of IS with regards to managerial work (not technical requirements).

The kernel of the thesis was that the ways in which IS are used depend most of all on the users of the systems and the level of their involvement. Galliers & Newell (2003; 165) state that 'it is the intelligent receiver (user) of these data, who will use his/her knowledge to interpret and make sense of the data in a specific context and for a particular purpose'. Findings in this research reinforced this particular angle and proposed a deeper consideration of it on the basis of concepts underpinning Introna's involved manager concept. Contributions included:

- Acknowledging the integration of explorative and exploitative IS in strategizing: Emphasising ambidextrous ways to using IS;

- Proposing an involved perspective based on the ontological position, which perceives the rational and involved manager as already always present in the same involvement whole. The representation of the strategic attribute was shifted from the resource-based view towards resourcefulness, emphasizing the involved use of IS by human agents.

The first point supported the explanation that the use of deliberate and emergent IS taking place in tandem. Separating the two approaches are conceptually helpful in drawing upon distinctions, however, practically not relevant. In both case studies, deliberate and emergent IS were inextricably inter-linked because the process of strategizing itself is unstructured with heavy reliance on experience-based tacit knowledge. As the process of strategizing was conceived as coping, this called for a congruent way of using IS, i.e as ambidextrous and embodied. The study concluded that much of the 'strategic-ness' of IS depends on the actor's resourcefulness. No IT/IS alone can add business value or outstanding performance in circumstances where tacit knowledge comprises the key element. Notwithstanding, while human agents cannot be studied in a vacuum, organizational IS cannot be studied without the consideration of human agents either.

The interpretation suggested that IS should be conceived as part of the knowledge activity and coping itself, as an extension of the knowledge workers themselves (cf. Polanyi 1966), in order for them to permeate the strategizing process. In other words, the strategic alignment argument between business strategies and associated IS/IT will not suffice to benefit from their potential without an involved view. As long as IS are treated as separate entities from strategizing and associated organizational complexities, they will not have a major impact on managerial strategizing activities, for example in enabling managers to develop new products or services while excelling at current businesses (Tinaikar 2006). According to Introna (1997: 40):

> 'Until this [personal knowledge] is addressed, information systems will never become part of the manager's body. And thus they will not become part of the focal acts of judgements and other management action.'

The consideration of the involved manager may introduce the following questions for future research:

- Could the involved manager develop 'situated intelligence' [the researcher's emphasis]?
- Comparing the involved mode across different cultures, would situated intelligence to some extent be linked to managerial practices inherent to certain cultures? In other

words, do managers in certain cultures have a more developed situated intelligence for using S in a way as to performing more effectively and efficiently in strategizing?

- Along these lines, does the ambidexterity (as an attitude towards using IS) apply to a variety of cultures? Can it be generalized as it is presented in the framework?

According to reviews on cross-cultural management research (Shaw 1990), many differences in attitudes, values and styles among managers from different countries have been found. However, very limited research has been done to explain how multi-cultural differences have an impact on the behavior of individuals within organizations and their relationship with one another (e.g. Adler 1983). Future research may consider the prevalence of ambidexterity of IS strategizing across different cultures, which implies different priorities in strategizing, hence different sense-making and different forms and approaches towards IS.

The discussion around users' 'situated intelligence' in strategizing and how IS may capture and integrate these are potentially fruitful extensions of this thesis. There has been research on the 'Intelligent Organization' (Choo 2006), which addresses the relationship between the organization as a whole with its environment, and the organization with its internal processes. Along these lines, Menkes (2005), from the executive coaching field, addresses attributes of 'Executive Intelligence' in relation to strategic-decisions in strategizing processes. It is this gap between organizational and managerial level competencies that need to be closed, however, not from the traditional rational view. In this context, IS may prove to be powerful tools, not as IT to enable data and information, but as enablers to link the organizational and managerial know-how in dynamic and synergistic ways.

An interesting area for further research is to consider the involved manager being-in different power structures of different national cultures. Considering the different rules, assumptions and perceptions to reality, one may explore the extent to which IS are integrated in the strategy processes, and in what ways managers use IS while having to cope with different set of structural and power constraints. For example, the ambidexterity of IS may apply less to more collectivist cultures than it does to the individualistic cultures of North America and parts of Europe. Perhaps it is not surprising that knowledge sharing strategies seem to be more successful in collectivistic cultures, and individual performance-based systems in individualist cultures.

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Contributions	Concept	Underlying assumption
Confirm	*Use of IS* as processual and ongoing (Galliers &Newell 2003)	IS as embedded and embodied (cf. Polanyi 1966; Blackler 1995); Improvisation (Ciborra 1999, 2001)
Confirm & Extend	*Strategizing* as ambidextrous (Tushman & O'Reilly 1994): apply to the field of IS – Ambidextrous IS strategizing as a way to leverage information and personal knowledge in strategizing.	Synthesis of exploration and exploitation IS in strategizing
Extend & Further Research	Future research may further investigate into *Human agent's resourcefulness as 'situated intelligence;* i.e. Menkes (2005) provides some useful attributes of the 'Executive Intelligence' in strategizing.	'The involved manager' (Introna 1997); Improvisation (Ciborra 1994; 2000) 'Dwelling in the world' (Chia & Holt 2006)

Figure 8.4: Summary of contributions

It can be implied that future applications of the IS strategizing framework will reveal different findings across a range of different contexts. However, the researcher speculates that if the strategic actor is considered through the lens of the involved manager, then one fundamental finding will remain consistent across different cases: this would be the ways in which IS are used depend on the practitioners' perceived world, the 'being-in' or involvement in the world and the embedded elements in their world. If this thesis would make any generalization, then it would be the emphasis on the human agent as the involved manager, on strategizing as coping, and management IS as vehicles used to achieve certainty in the unpredictable and changing environments.

While reflecting on the arguments in a concluding remark, it would be interesting to briefly consider the following: Why are academia and organizations so interested in finding best practices, strategies and continuous amendments to established frameworks? What is the driving force behind the desire to have strategies that 'work better'? One obvious answer is to respond to the changing requirements of changing environments, to create certainty that one's intentions will be realized, to increase predictability and lower risk of failure. A strategy and the relevant IT give organizations and managers the perceived certainty about achieving an outcome and, moreover, the perception of control over the direction of the company in the face of flux and unpredictability.

Consider for a moment this: what would happen to IS if internal and external environments would not change, events would be predictable and information would be transparent. What

would this mean to strategy and IS? Let us assume that in predictable environments, strategy would become best practice and would work time after time. This would imply that the associated IT would also provide predictability and consistent value, given it is used appropriately.

Given this scenario, what would happen to the ways in which managers used IS/IT in such an environment? Would corporate IT still be as valuable? Would managers at HPC and PCS still make use of subsystems or soley rely on corporate mechanism as intended by the organization? From the analysis, we predict that even if the environments were stable, certain and predictable, still we would find subsystems to persist. The reason goes back to the idea that certainty does not provide competitive advantage in competitive environments (at least in endevear of this research). Once managers saturate the benefits of an existing IS, (still assuming the environments are stable), they would then find ways to differentiate themselves from their peers and their environment in order to become different and more competitive. This implies a different use of the same IS vehicles or the use of different tools/IS all together. Referring to the understanding of strategizing as dwelling-in and the fundamental role of the everyday 'life-world' (Ciborra 2004:18-19) of relevant agents, it makes sense to think of strategizing as the messiness and situated-ness of their coping. This challenges the idealization of the scientific method and emphasizes the strategic importance of heuristics and the involved mode of operations.

Having reflected on a series of paradoxes associated with underlying assumptions of IS in strategizing, the thesis concludes with the point that behind every rational manager there is an always already involved one, where the process of decision-making not only consists of hard facts and evidence, but also on intuition, tinkering, improvisation and mood (Ciborra 2004). The understanding is not only relevant to strategizing and decision making, but moreover, to technology, knowledge management. The research encourages deeper consideration of phenomenological ontology from a practice-based view on strategizing. This will have implications on the ways in which IS are viewed and developed in practice with the focus on allowing the usefulness of IS become immanent to manager's being involved, and so to allow managers become more resourceful in their strategizing - as opposed to extensive use of resources for sake of the resources themselves. This is where the research found the strategic value of IS. Future research along the lines may serve towards bringing together cross-disciplinary issues into the dialogue of academic research and managerial practices.

A. OVERVIEW OF PRELIMINARY RESEARCH & CASE STUDIES

As a preliminary research, 6 small scale pilot studies were conducted, 1 of which was more extensive in terms of number of people and effort put into. All are based on semi-structured as well as unstructured interviews.

Type of Study	Informants/ Location	Type of Company	Data Collection Method	Time of Study
Pre-liminary Studies	- Strategy Consulting Firm: UK	Private, Global	5 meetings, 3 interviews, email correspondences.	2001-2002
	- Oil & Gas Company, Netherlands	Public, Global	1 phone interview	January 2002
	- IT & Engineering Consulting, UK	Public, Global	6 Interviews, 1 strategy review meeting	Summer 2002
	- Executive Coaches, USA	Private	2 interviews	Summer 2003
	- IT Strategy Consultant, Germany	Public	1 interview	March 9, 2004
	- Industrial Goods Exporter, Germany	Private	2 interviews	April 8, 2004
Main	HPC: USA & Germany Engineering, Hydro Power Generation	Private HQ Germany	23 semi-structured interviews (not including repeated interviews with selected members) in Germany and USA	2003-5
Main	PCS: USA Financial Advisory and Services, Private Client Group	Public HQ USA	13 un- and semi- interviews; Observations over 6 months	November 2005 – April 2006

Table A-1: Overview of the Empirical Work 2001-2006

B. PILOT STUDIES

More details on the two most relevant pilot studies are provided below.

1. Oil & Gas Company, Netherlands
Phone interview
Date: 23 January 2002
Duration: 40 minutes

First, a semi-structured phone interview was conducted with a director at Shell Global Solutions in Netherlands. The questions were in relations to the perception of the executive HR manager on issues surrounding KM and management IS, information infrastructure strategies, corporate communication resources and corporate culture.

Question

Given the increasing global competition, I am interested in understanding how senior managers at your company use IS to their advantage. This includes IT and non-IT related IS, including Knowledge Management (KM). How is knowledge managed in different parts of the company?

Summary of the Interviewee's response

First, the Interviewee pointed out the controversy in theory and practice, that there is no clear-cut definition for KM or management IS. Rather, 'KM is understood, valued and dealt with differently depending on which part of the organization we are looking at', and what roles and responsibilities the actors have.

The Interviewee made his comment in relation with his position and responsibilities as a senior manager and a member of the Technology Solutions project at firm. He mentioned briefly that one of his tasks is making sure that the corporate knowledge is transferred and taught effectively, efficiently, and quickly to all employees, especially to the new recruits, and to ensure that the corporate culture and internal knowledge is understood and applied in accordance to expectations. He emphasised that what matters is not the knowledge that is available to everyone, that which is explicit, but the continuous development and distribution of tacit knowledge within teams, so the sum (collective tacit knowledge of the team as a whole) is more than each individual member's knowledge.

He speculated on the following issues that interested him:

- 'To what extent is knowledge considered an asset? And why?'
- 'What types of knowledge are useful?'
- 'How can I quickly on-board people? What can you do to make people learn more quickly' and increase the collective tacit knowledge of the company?'
- 'How do you teach new managers about the corporate tacit knowledge and at the same time let them maintain their individuality and innovative spirit?'

Example: Even if the best coach could give clear instructions on how to win the game of tennis, that does not make the listener a tennis player, by far not a good one to win the game. So, what does is take to share the tacit knowledge and apply/use it to its full potential?
The interviewee provided interesting issues and points of departure on the topic.

2. Global IT & Engineering Consulting Firm, UK

At a later stage, another case study was arranged at a leading global IT & Engineering Consulting Firm, headquartered in Epsom, UK. The researcher interviewed 6 executives and one Strategy & Markets Analyst (the contact person). The study required several trips to the corporate offices. Interviews were semi-structured and notes were taken. Furthermore, the researcher was allowed to sit in a one-day strategy review meeting to observe and take notes.

Many conversations were held with the contact person who gave deeper insight into the company and the interviewees' backgrounds, their roles and responsibilities. Interview questions were structured in accordance with the IS strategizing framework (Galliers & Newell 2003), primarily in relation with existence corporate information resources and networks for the purpose of decision-making. Reference was made to business intelligence systems, ERP systems, decision tool systems, knowledge management systems.

This was an interesting case because the company was going through a challenging time on the corporate governance level. Certainly, there was tension that affected their attitudes towards the researcher during the politically unstable times. As some respondents were reluctant to share information, others used the opportunity to express their frustration and might have shared information that they would not have otherwise. Nevertheless, the responses where valuable because they raised issues that shaped the direction of the study and helped to fine tune the approach to the remaining interviews.

Interview Reference

1. Strategy & Marketing Analyst - Introduction Meeting in Epsom, Tues 22 August 3pm - 4pm.
2. Strategy & Marketing Director: Epsom, Wed 11 September 11.30pm -12.30pm.
3. Strategy Review Meeting (Pre-curser to BU reviews): Epsom, Wed 11 September 2pm - 5pm.
4. M & A team: Epsom, Fri 13 September 10am -11am.
5. International Business Development Director: Epsom, Fri 13 September 11.30am – 1pm.
6. Managing Director of North American subsidiary Phone Interview. September 7pm - 8pm.
7. Rail Strategy Director: London, Fri Sept 1pm – 2pm.
8. Conclusions Meeting in London, October.

Summary of the Study

This study represents a brief pilot case study to fine tune the methodological tools for further studies at multi-national companies. The first interview was conducted with the Strategy & Marketing Director, who showed great amount of interest and talked about the organizational and governance structure at his company, and how IS and Knowledge Management Systems (KMS) related to his company's strategizing processes. In regards to a need for a large scale MIS/KMS, he did not show an immediate interest or need due to the de-centralized structure of the firm. He was rather pessimistic about the success of such systems. Main reasons were the time require to implement the systems and train managers (who 'do not have time for such things'), and lack of unified corporate culture. This behavior was justified by the nature of their jobs as busy managers who 'are constantly juggle new issues'. Each division has the incentive to retain their tacit knowledge for own benefit as opposed to share them openly with the top management for the sake of improving organisational intelligence.

Most divisions at the firm are designed to operate independently; therefore, managing directors (MDs) tend to adopt an independent strategy, accordingly. Hence, an integrated KMS seemed unrealistic and not reliable for corporate strategists under the given corporate structure, governance and changing circumstances at that point in time. As he concluded, a KMS [also referring to any kind of management IS] that supports the acquisition, storage and dissemination of knowledge, especially tacit knowledge, across divisions seem too idealistic given the current structure and culture.

Strategy meeting The Strategy Director led the meeting. Four other participants were present to discuss the performance of each of the firm's business units (Bus). The director seemed to have a hard time to make sure that the BU managers were following the business plan that a strategy consulting firm had prepared for them. Each of the four participants was giving an analysis of their division and the performance of each unit was evaluated by a method developed by the strategy consulting firm.

An interesting observation was during a short break, when the director, also the strategy team leader, left the room to greet another colleague. The environment in the room changed from tense formality to ease and informality. Overall, the researcher speculates that participants did not seem to openly share their expertise on the problems facing their business units. They were more concerned with being politically correct and comply. There was a cultural divide between the participants who were on different teams. In a follow-up interview, the director articulated that most of the problems with knowledge sharing stems from political tension in the company, not because of a lack of IS.

Another interviewee openly talked about the political and cultural conflicts on the corporate level which are in the way of efficient knowledge sharing. From his experience, there was no corporate sense of unity, and consequently, people would be driven by compensation and reputation only. His view on KMS/IS was similar to the first interviewee, although he believed that with sufficient investments (which were not available) and sufficient remuneration, people would be willing to share more of their knowledge and open a greater possibility for a KMS/IS.

According to another interviewee in the London office, the challenge lied in the internal KM rather than external KM. The internal expertise is unknown, hidden and tough to access, assimilate and share. It is the 'how' that matters the most (how to leverage the intellectual capital). The difficulty is in the dispersed nature of the company, in terms of geography and specialization. Both of these express different human mentalities and cultures, which are controversial and difficult to manage.

The company was going through turmoil during the 6-week study, which created a lot of uncertainty on the part of the interviewees. The growing instabilities, changes in corporate governance and corporate strategies affected the responses of the participants, which may have produced biased statements to some of the interview questions. A major issue was the repeated emphasis on the 'lack of trust' in the corporate culture. Gradually, the contextual nature of the company drew focus away from the main topic of the thesis, shifting from the study of how knowledge is acquired, shared and used towards how to cope with organizational change and ongoing turmoil.

C. HPC CASE STUDY

April 2003 – May 2005

Sources of Data:
- 23 interviewees + 10 repeated interviews = Total 33 Interviews
- Many Email correspondences and informal conversations
- Company documents (these will be treated confidential due to the company logo and name appearing on the documents): Strategy plans, Strategy presentations, Engineering drawings

Four trips to German and USA, twice at each site:
- Interviews in the USA: 12 + 7 repeats (4 of which were phone interviews)
- Interviews in Germany: 11 + 3 repeats
- 4 Phone interviews

Trip 1: USA   November 2003   10 Interviews
Trip 2: Germany June 2004   9 Interviews
Trip 3: USA   October 2004   5 Interviews (2 new, 3 repeats)
Trip 4: Germany March 2005   5 Interviews (2 new, 3 repeats)

Interviewee In-Text Nr	Position of Responsibility (2-30 years experience)	Number of Interviews	Country of Interview
1.	Executive Vice President	1	USA
2.	Director in Project Management	1	Germany
3.	Director in Field Operations	2	USA
4.	Executive VP in Technology	1	USA
5.	Director in Automation	2	Germany
6.	HR Director	3	Germany
7.	HR Director	3	USA
8.	Sr Manager - Business Development	3	USA
9.	Sr Manager - Business Development	1	USA
10.	Sr Regional sales manager	1	USA
11.	Sr Manager in Project management & Engineering	1	USA
12.	Sr Manager – Proposal Engineering	2	USA
13.	Sr Manager - Strategic Sourcing	1	Germany
14.	Sr Manager – Contract Administration & Commercial Project Manager	1	Germany
15.	Manager – Strategic Sourcing	1	Germany
16.	Manager – Supply Chain & Sourcing	1	Germany
17.	Manager – Facilities, manufacturing & Technology	2	USA
18.	Manager – Corporate Controlling	1	Germany
19.	Manager in Group Controlling	1	Germany
20.	Project Manager	1	USA
21.	Manager in Manufacturing	1	Germany
22.	Manager – Field Service, Installation & Commissioning	1	USA
23.	IT Project Manager, PhD	1	Germany

Table A-2: HPC List of Interviewees

D. PCS CASE STUDY

November 2005 – May 2006

Empirical material were collected based on accessibility through (1) unstructured and semi-structured interviews and note-taking; (2) observation of day-to-day operations of managers and advisors, and some participation in relevant events.

Sources of data include:
- Investment Managers and Advisors (years of experience at PCS ranged 2-30 years)
- Assistants to the managers/advisors to have them explain to me the details of some of the information systems that the advisors used (these were conversations and background information to interviews with advisors)
- Team meetings, knowledge sharing meetings, conference calls
- Strategy meetings and preparation for the meeting with the team leader
- Managers/advisors 'thinking loud' in tackling emerging challenges
- Marketing strategy and business development documents
- Company documents:
  - Company intranet: Applications and programs for investment and client strategies, information sharing portals, data analysis programs, financial assessment programs, information resources, sources of reference, E-Learning and interactive courses, company forms and templates, etc.
  - Specific to teams: Marketing material and company publications, Business development and strategy plans.

  Due to confidentiality, most of these documents were not allowed to be taken away from the office (e.g., 'internal use only' documents). Any relevant information has been extracted with permission and integrated in chapters 5 and 6. The material not presented did not affect the research.

Interviewee In-Text Nr	Interviewees' Position of Responsibility [All in the USA] (2-30 Years of Experience at PCS)
1.	VP & Senior (Sr) Advisor – Business Development (BD) and Sales
2.	Director & Sr Advisor - BD and Sales
3.	Sr Advisor – BD and Investment Strategy
4.	Sr Advisor – BD and Investment Strategy
5.	Sr Advisor & Trainer – BD and Sales
6.	Advisor – BD, Sales and Investment Strategy
7.	Sr Advisor – BD and Sales
8.	Sr Advisor – BD and Sales
9.	Advisor – Investment Strategy and Sales
10.	Retired Senior Advisor – BD and Sales
11.	Management Director – Manages 7 regional offices
12.	Advisor – Investment Strategy
13.	Sr Advisor – BD and Sales

Table A-3: PCS List of Interviewees

Sources of Data (6 months)	Participants	Typical duration	Description	The research/er
Social Events (7 events)	Senior advisors, their assistants, occasionally the office director	30 Minutes – 2 Hours	Socialization/ networking events, lunch and coffee breaks.	Researcher holds conversations on the work of the advisors, asks them to give examples; observing the level of interaction and knowledge sharing. Takes notes after the events on aspects of the conversations that seemed to be important.
Client/Prospect meetings (10 meetings)	Senior advisor, client, the researcher	45 – 70 Minutes	Meetings with clients either at the office or at the client home; Advisor discusses issues of concern; Meetings with prospects to negotiate the conditions of working together, brief on services, products and assessing the client's options.	Researcher observes how advisors prepare for meetings, talks to them about what information they are considering and what they base their approach on; specific attention paid to the IS and IT used before, during and after the meetings. The researcher learns the company software / IS programs on client and investment strategies which are used daily by advisors.
Knowledge sharing meetings (8 meetings)	7-12 senior advisors	30-45 Minutes	Informal meetings to share concerns, lessons and references with regards to prospecting, business developing and devising new strategies. Discussions cover topics from what techniques to use, to what IS are helpful to manage information.	The researcher sits in the meetings and observes the dynamic of the interaction. After the meetings, informal conversations are held with individual advisors on the outcome of the meeting.
Weekly Internal conference calls (sat in at 5 calls)	A lead senior advisor and the researcher, plus a large team (12 people) based on the other	20 - 60 Minutes depending on number of members and	To inform and share the latest information on the markets, company structured products and latest trends; to share	Record the IS used before, during and after the call; effectiveness of the call relative to expectations;

	line in New York	questions asked after a routine briefing on the financial markets	experience on certain client sectors; come up with ways to approach a prospect	reactions to new and relevant information; processing of the information/ knowledge using IS; etc.
Weekly supplier meetings (i.e. financial and IT specialists) (invited to 8 meetings)	5 – 10 senior advisors	45 – 60 Minutes	Financial specialists (internal and external) inform financial advisors on the latest structured products or specialised software systems in dealing with investment strategies or client relationship management strategies. The meetings become interactive in a Q & A session and informal conversations.	The researcher sits in the meetings, learns about the material and observes the participants. Takes notes on the observations; informal conversations with available participants and financial specialists; takes notes.

Table A-4: PCS Sources of Empirical Material

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E. INTERVIEW QUESTIONS & GUIDES

The following section includes a collection of the material used in the interpretive research process. This includes notes, and unstructured and semi-structured interview questions used as a guide during the investigation. Also, the subsections are related to different times and places (Germany, USA and UK). Notably, there may be questions that do not seem to be directly relevant to the core argument of the thesis, at first. The questions reflect the learning process of the researcher and the process of fine tuning the research focus. Raising issues and topics indirectly related to the key terms often unleashed further insights, which served making sense of the research inquiry more holistically. Similarly, while some questions and sections may appear to be repetitive, the sense- making and underlying understanding of the formulated questions evolved considerably during the span of the research.

BACKGROUND TO THE RESEARCH

TOPIC

How are Information and Knowledge leveraged in decision making and strategizing in a cross-cultural working environment?

What resources, processes or strategies are used to share knowledge and how do these impact decisions and processes of corporate strategizing?

INTRODUCTION

Given that globalization and advanced technologies are continuously changing the way organizational resources and business strategies are chosen and managed, the speed and quality of strategic decision-making becomes critical to sustaining competitive advantage.

The purpose of this research is to investigate the ways in which decision makers use knowledge to strategize and compete, given the increasing complexity of differing paradigms, mindsets and process requirements across cultures.

The study takes a **socio-technical approach** in looking at socio-cultural, organizational and IS aspects that shape (or are shaped by) decision making. Systems are tackled in their broader sense, including ICTs, people, tangible as well as intangible resources.

OVERVIEW OF THEORETICAL CONCEPTS IN OUTLINE:

1. **Strategy for business development**
2. **Strategizing: managerial work and activities towards achieving the desired goal**
* How do you define strategy and strategizing?
* What are the expectations and what is important to you in order to meet them?
* What are the resources that are available to support your processes?
* What resources do you usually rely on consistently and randomly in order to assess and analyze a situation, a customer, or an event? Why? How often? Does this meet your needs?
* To what extent do these resources shape your decisions?

- Do you usually reflect on the work process and re-examine things?
- To what extent do you use data, information, knowledge and wisdom?
- Where do you tap to get these?
- How are these organized and used?
- What are some of the issues you perceive as a challenge? Please reflect on how organizational resources affect your stratgizing processes.
- Please identify the gap (if any) between what you would like see/experience/use relative to current perceived deficiencies/shortcomings.

Influencing factors that support or hinder the decision making process:

- Organizational structure and management styles
- Information Infrastructure
- Information Systems ('systems' in a broad sense, e.g., technologies, people/social processes, networks, corporate resources)
- Cultural values, differing paradigms and mental models
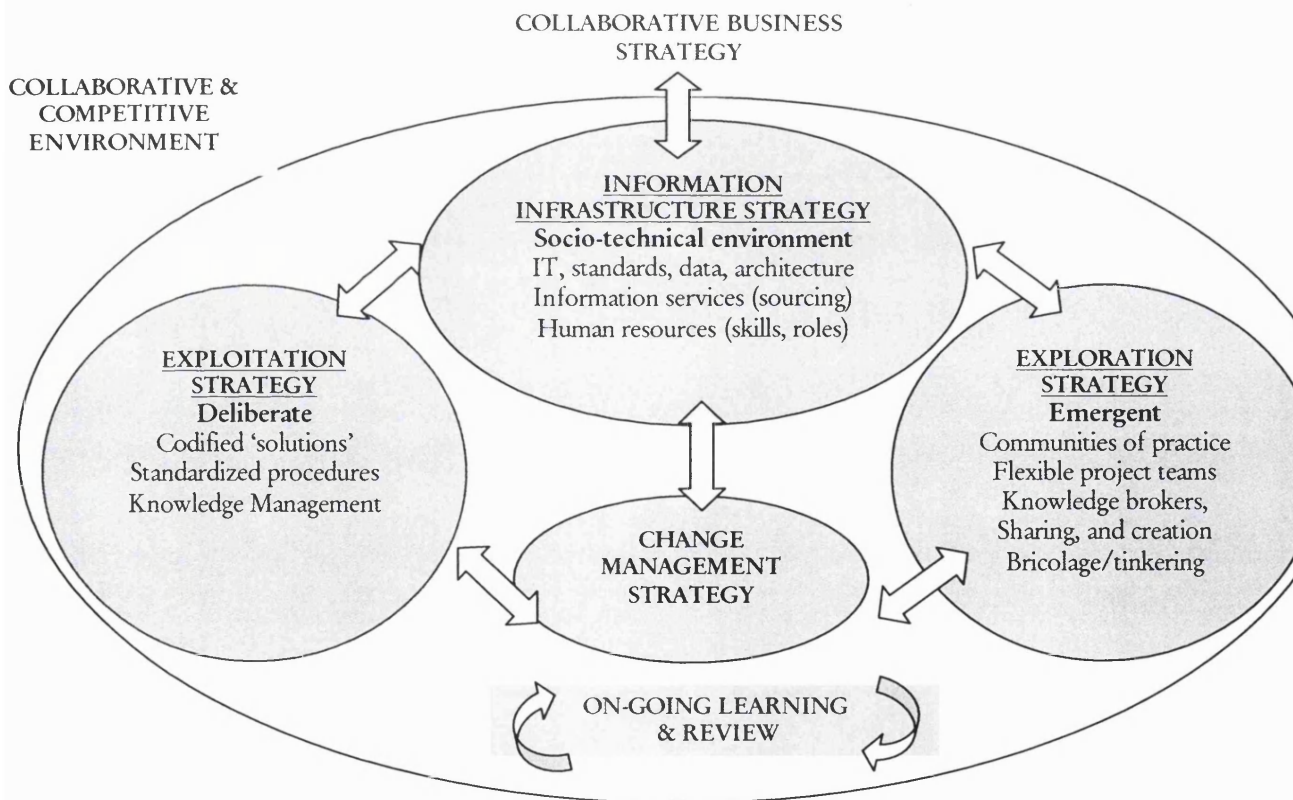- Politics and managerial discretion

Figure: The IS Strategy Framework (Galliers & Newell 2003)

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DISCUSSION AGENDA [used during interviews]

STRATEGY AND DECISION MAKING
- Conceptualization of strategy: perspectives & meanings, styles and approaches
- Decision making and influencing factors in Strategy creation:
  1. Information Infrastructure
  2. Information & Knowledge Resources
  3. Technology
  4. Culture
  5. Change
  6. Management styles and politics

QUESTIONS:

II. Decision-making & Strategy:
- How do you define strategizing and how do you approach it? Could you think of an example?
- How do you approach decision making during strategy development?
- What are the most important elements/questions for you in strategy? Could you give an illustration from a current or past experience?

1. Information Infrastructure (II):
- Is there an Information Infrastructure in place?
- If yes, in what form? What does it consist of (components)? What are the processes?
- What is the purpose of the II? (i.e. information coding, knowledge sharing, etc.)
- How effective is the current II? How does it support or hinder work processes?
- How does it support/hinder decision making?
- Is there a company-wide II or separate ones in each country? If separate, then are they linked (universal access)? Would you prefer a universal II or separate ones and why?
- How is the II linked with strategizing? What components of the II are mostly used?
- If you (the interviewee) were going to re-do the II of the firm as to support decision making processes, how would you design it? What components would you include/exclude and why? How feasible would that be?

2. Information and Knowledge resources
- What tools, processes or metrics do you use to capture knowledge throughout the company, generally?
- What resources do you use when you are making important decisions?
- What resources are lacking that if they were available, you would be able to make more effective decisions faster?
- Could you elaborate on using 'experience' and 'technology' in strategizing, first each Inividually, then both in combination.
- How do you define Information Systems? (i.e. focus on social system or technical systems).
- What is the role of IS in decision making?
- How much do you use your IS? How effective is it?
- If you could improve on the current IS, how would you like to design it to improve decision making?

3. Technology:

- What kind of data, information and knowledge do you store?
- In what format are these stored (structure of format)?
- Can unstructured data and unpublished knowledge be useful? (business knowledge, customer knowledge, product and markets)
- Is there a stream focusing on KM?
    - a. Content / Document management (data bases: pulling data together from various systems. A systems that streamlines processes of generating reports and running queries?)
    - b. Business Intelligence
    - c. CRM (Customer relationship Mgt)
    - d. KMS/SAP/ etc
- What kind of technology do you use for making decisions?
- Are these technologies well aligned with business objectives? In other words, is the technology built strategically to enhance decision making, or is it used on ad hoc basis?
- Are there any IT strategies in place that would support management decisions?
- Is IT used as a 'problem solver' or a 'strategic driver' of projects?
- How could the current technology be leveraged even more for better decision making?
- What challenges do you face when using the technology?
- What kinds of new technologies could you think of, that if implemented and used, they could act synergistically in strategy development?
- In your opinions, what is the best knowledge management strategy?

4. Culture:

- Given that the workforce comes from many different cultural backgrounds, could you elaborate on how the multi-cultural environment affects work processes and ultimately decision processes in Germany/US? How different is it in G. and US?
- What difficulties/challenges/benefits do you experience (a) on daily basis (b) when it comes to making choices/ decisions and strategizing?
- What are the most disruptive challenges (i.e. language, mind-sets, technology, etc)?
- If this is a challenge, how does the management team get along trying to overcome cultural barriers?
- What does the company do towards facilitating a knowledge sharing environment?
- How do you deal with different management thinking in Germany and the US?
- 'The most valuable portion of knowledge remains tacit, which is deeply embedded in the person who performs the task'. How is this tacit knowledge captured and shared given different mindsets?

5. *Change*

- 'If you miss the chance to change in your industry, you are not managing knowledge'. How do you manage knowledge during times of change?
- How are you expecting to capture the tacit knowledge as you change over time? (i.e. organizational memory) How well is it working?

6. Management styles and politics

- Could you elaborate on management and decision making styles in Germany and in the US?

- How are the different management styles among these cultures affect decision making?
- How are managers dealing with these differences?
- How much does managerial discretion play a role in strategizing?
- Do you see different politics among US and German managers? How does it influence (directly or indirectly) the ways information and knowledge are used in strategy meetings?

III. TOOLS/TECHNIQUES TO LEVERAGE KNOWLEDGE IN DECISION MAKING

ILLUSTRATION
Communication process, structure and strategy in decision making

(a) Spectrum of communication

Data	Information	Knowledge	Wisdom	Intuition
		Explicit Tacit		
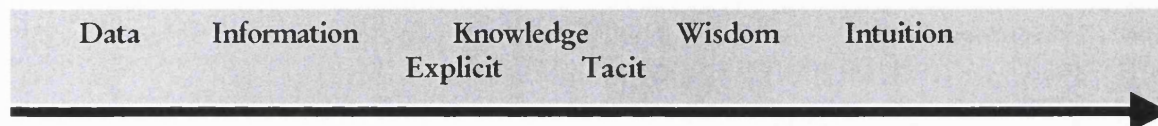
Please use your own definition of these terms. The below definitions are not fixed and open to consider your definition.
Data = Raw data outside any context
Information = Data + context. Meaningful and explanatory.
Explicit Knowledge = Information + experience. Leading to a wholesome understanding.
Can be communicated, documented and transferred easily
Tacit Knowledge = Experienced knowledge. Difficult to communicate and record. Learned by doing.
Wisdom = Deep understanding through long-term experience.
Intuition = 'gut feeling'

(b) Information Systems and Infrastructure supporting decision-making

ICTs	Interactive Media	Communication in Person
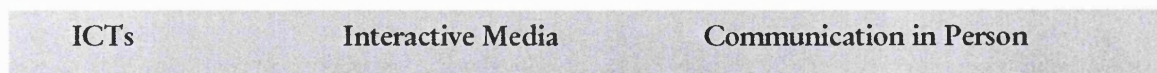
ICTs = Information and Communication Technologies

- In the above illustration, what do you consider as most significant and mostly used in your communication (a)?
- How is your response to (a) facilitated/enabled? Please refer to (b)
- How do you process different types of knowledge (tacit, explicit and intuitive) to come to a decision on a corporate strategy?
- In other words, is there any strategy, system, process or structure in place that gives you what you need to know?
- What are the resources enabling you to make the best use of that?
- Which information and knowledge resources (data and facts, experience and intuition, social networks, information technology and/or knowledge systems) are used and to what extent?

IV. CONCLUSIONS

- If you were to provide guidelines to establish an environment with effective knowledge exchange and decision making, how would it look like (components)?
- What would you have to do (how would you have to organize your knowledge processes) in order to make more effective and quicker decisions?
- If a knowledge network could help to create that common understanding among decision makers, how would it look like? (e.g. technological, cultural, etc.)

THANK YOU VERY MUCH FOR YOUR INTEREST AND COOPERATION. FOR FUTURE CORRESPONDENCE, PLEASE CONTACT ME AT A.HATAMI@LSE.AC.UK

Topic Structure [Presented this to selected interviewees as a visual guide for discussions, when appropriate]

```
┌─────────────────┐
│  Strategizing   │
└─────────────────┘
  │
a process of continuous ...
  │
  ▼
┌─────────────────┐
│ Decision-Making │
└─────────────────┘
  │
leveraging ....
  │
  ▼
┌─────────────────┐        ┌─────────────────┐
│  Intellectual   │        │   Information   │
│   Capital &     │ ─────▶ │ Infrastructure  │
│ Organizational  │        │      (II)       │
│   Resources     │        └─────────────────┘
└─────────────────┘
         Embedded within the
```

Explicit: IT, Data, Systems, Standards, Sourcing, Forums, Documents

Dynamic integration and interaction of competitive resources: ICTs & intellectual capital in consensus building & decision-making

Tacit: Negotiation, perception management, firm culture, management styles & paradigms, value system, mental models

Topics:

Define Strategy: Styles. Process.
Strategy-Structure Debate: Ambidextrous structure

Decision-making: Process. Resources. Styles. Context. Management roles. Leadership.

Info Systems & Infrastructures: Competitive resources, tools, practices

Knowledge Management: Strategy, use, impact on Organizational learning, Org. Memory

Gap: Information Strategy and Business Strategy: Is an alignment possible? Define.

Beyond the Hype of 'Best Practice'

Management, Information and Power

Strategy + Strategizing at global companies

How are **decisions** made by top managers company wide?
A Macro view

Specifically: **What is involved** and **what resources** are used to make decisions? **Why & How?**

Focus on: **Explicit + Tacit** resources.
Info Infrastructure (II) : **Systems, Management styles, cultures, etc.**

a) How is the II designed to support decisions?
b) How is knowledge shared? What works, what does not work?

a) limits and benefits of an II in the context of strategizing
b) interaction of management, culture, politics. Knowledge as a source of power and rent-seeking behaviour that affect the ways II are used and decisions are made

Critical Analysis. Discussion of Implications and Limitations. Contributions. Conclusions. Suggestion for further research

INTERVIEW QUESTIONS [Developed during the preliminary phase of the study]

A complete list of questions was prepared as a guide to the interviews. Depending on the background of the interviewee, time, and the direction of the interviews, the most appropriate questions were selected and asked.

1. **What is your approach in making a strategic decision?**
   [Identify the type/dimension of resources used to make a decision on a strategic issue / develop a strategy – data, information, knowledge]

2. **What is the knowledge base which you use?**
   a. Social networks: meetings, internal networks, external networks, etc.
   b. Technology: computer-based systems, expert systems, knowledge systems, information systems, etc.
   c. Deliberate/rational plan (weighing and analyzing facts), emergent (subjective judgments), or ad-hoc?
   d. Formal of informal?
   e. Identify knowledge dimensions: explicit, tacit, intuition]

3. To what extent do you shape the context you operate to your benefit?
4. What are your strengths?
5. What are you weaknesses?
6. How do you know what matters most in making a strategic decision?
7. How do you capture and retain new knowledge/lessons?
8. How do you deal with the complexity and volume of corporate knowledge? How do you know which you should or should not consider in making strategic decisions?
9. What would you have to do (How would you have to organize your knowledge processes) in order to make more effective and quicker decisions?
10. How could more effective use of knowledge serve you better?

GENERAL QUESTIONS ON SELF-PERCEPTION & OVERALL CHALLENGES

11. [competitive business environment] How do you describe the nature of your business? What is significant for the success of your firm in an entrepreneurial environment?
12. [internal capabilities] How do you see the fit between your internal capabilities and external competition? What are your competitive advantages (inside the organization)?
13. [resource-based competition] How do you develop or sustain competitive advantage? How do you differentiate yourself with internal resources?
14. [business strategy] what are some of the challenges you face in making a strategic decision?
15. [organizational strategy] How do you see the role of technology contribute to knowledge processes as opposed to culture and social networks?
16. [knowledge use in strategizing] How do you achieve alignment between knowledge and strategic objectives/business strategy?
17. [Socio-technical environment] How do you see technology could play a role in supporting your information processes? How would a technology-oriented information systems support knowledge creation (information +
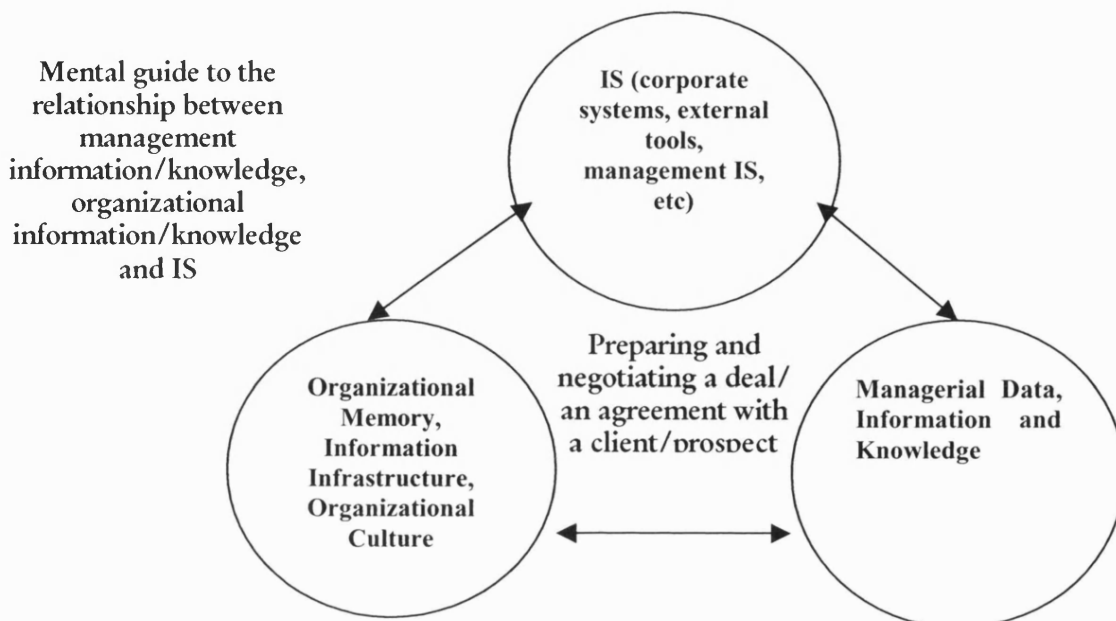
experience)? What are the non-technology-oriented resources you use to gather information? How do you create knowledge from the acquired information?

Relationship between data-driven (refine, choose, produce, select, implement, execute) and experience-based to interpret information and create knowledge (exploration strategy: search, experimentation, flexibility and playfulness, experimentation, etc.)

18. How do you explore new possibilities and exploit old certainties?
19. How do you know what you don't know and how do you deal with it?
20. How do you deal with uncertainty?
21. [Organizational Learning] How do you capture lessons learned? How do you convert tacit to explicit?
22. How do you take advantage of what you have how do deal with what you don't know?
23. How do you inform yourself about a strategic issue?
24. What are the challenges in dealing with what matters and what is important to know? What is significant knowledge in strategizing?
25. How do you identify competitive knowledge?
26. What are the necessary resources, competences and capabilities to gather, share and create the knowledge that you need to know?

QUESTIONS CONCERNING NEGOTIATION AT MEETINGS (cross-cultural challenges & diverse paradigms)

27. What are some of the challenges in communicating knowledge in a group?
28. How do you share ideas and expertise across the company?
29. What is the basis of a strategic choice? How do you make a selection among alternative options?
30. Considering the knowledge overload, how do you avoid drifting away from business objectives?
31. What are the components of a decision that you examine?
32. How do you evaluate a strategic decision to make a final decision?
33. What do you consider in making decisions?
34. How do you deal with what you don't know in a group?
35. How are you differentiating yourself and conquer the market?
36. How do you use your knowledge to your advantage?

Mental guide to the relationship between management information/knowledge, organizational information/knowledge and IS

IS (corporate systems, external tools, management IS, etc)

Organizational Memory, Information Infrastructure, Organizational Culture

Preparing and negotiating a deal/ an agreement with a client/prospect

Managerial Data, Information and Knowledge

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