Aston University

If you have discovered material in AURA which is unlawful e.g. breaches copyright, (either yours or that of a third party) or any other law, including but not limited to those relating to patent, trademark, confidentiality, data protection, obscenity, defamation, libel, then please read our Takedown Policy and contact the service immediately

THE KNOWLEDGE-BASED PERSPECTIVE OF RISK MANAGEMENT IN HEALTHCARE ORGANISATIONS

Athina H. Anthropopoulou

Doctor of Philosophy

ASTON UNIVERSITY

December 2010

This copy of the thesis has been supplied on condition that anyone who consults it is understood to recognise that its copyright rests with its author and that no quotation from the thesis and no information derived from it may be published without proper acknowledgement.

ASTON UNIVERSITY

THE KNOWLEDGE-BASED PERSPECTIVE OF RISK MANAGEMENT IN HEALTHCARE ORGANISATIONS

Athina H. Anthropopoulou
Doctor of Philosophy
2010

Thesis Summary

The aim of this research is to investigate how risk management in a healthcare organisation can be supported by knowledge management. The subject of research is the development and management of existing logs called "risk registers", through specific risk management processes employed in a N.H.S. (Foundation) Trust in England, in the U.K.

Existing literature on organisational risk management stresses the importance of knowledge for the effective implementation of risk management programmes, claiming that knowledge used to perceive risk is biased by the beliefs of individuals and groups involved in risk management and therefore is considered incomplete. Further, literature on organisational knowledge management presents several definitions and categorisations of knowledge and approaches for knowledge manipulation in the organisational context as a whole. However, there is no specific approach regarding "how to deal" with knowledge in the course of organisational risk management.

The research is based on a single case study, on a N.H.S. (Foundation) Trust, is influenced by principles of interpretivism and the frame of mind of Soft Systems Methodology (S.S.M.) to investigate the management of risk registers, from the viewpoint of people involved in the situation. Data revealed that knowledge about risks and about the existing risk management policy and procedures is situated in several locations in the Trust and is neither consolidated nor present where and when required. This study proposes a framework that identifies required knowledge for each of the risk management processes and outlines methods for conversion of this knowledge, based on the SECI knowledge conversion model, and activities to facilitate knowledge conversion so that knowledge is effectively used for the development of risk registers and the monitoring of risks throughout the whole Trust under study.

This study has theoretical impact in the management science literature as it addresses the issue of incomplete knowledge raised in the risk management literature using concepts of the knowledge management literature, such as the knowledge conversion model. In essence, the combination of required risk and risk management related knowledge with the required type of communication for risk management creates the proposed methods for the support of each risk management process for the risk registers. Further, the indication of the importance of knowledge in risk management and the presentation of a framework that consolidates knowledge required for the risk management processes and proposes way(s) for the communication of this knowledge within a healthcare organisation have practical impact in the management of healthcare organisations.

Keywords: knowledge creation; SECI; knowledge sharing; risk management processes; risk registers

Acknowledgements

First and foremost, I owe my deepest gratitude for the completion of this thesis to my advisor Professor John Edwards; his support, guidance, encouragement, patience have been valuable and critical throughout all those years.

I would also like to thank my parents Irini and Haralambos and my parents-in-law, Fifi and Tasos for their continuous support; they have spent most of their time on a plane!

Last but not least, I want to thank my husband, Yannis, for being there for better and, mainly, for worse...

List of Contents

List of Figures

List of Tables

CHAPTER 1. INTRODUCTION

1.1 Research Overview

Risk management is a complex decision making process that involves manipulation of knowledge bounded by the beliefs and perceptions of individuals and groups in organisations. Risk management is crucial for healthcare organisations, while for the N.H.S. in England, under the "umbrella" of clinical governance, it is "the statutory duty of health professionals" (Department of Health 1997).

On the other hand, knowledge management in organisations as a discipline is discussed widely from theoretical and practical perspectives. Knowledge management literature is characterised by a variety of publications covering the context of organisational knowledge, the processes for the management of knowledge and methods, techniques, and tools to support these processes (Wiig et al. 1997).

The current study was triggered by discussions in a N.H.S. Trust in England, which has since achieved Foundation status. Namely, members of the management of the organisation involved in a recently launched risk management programme were concerned about the implementation of the risk management strategy through the existing risk management policy and procedures, and were particularly interested in knowledge management.

The aim of this research was defined by those two axes: risk management and knowledge management; the subject being the Trust and especially the risk management processes employed to support the creation and management of risk registers; i.e., the logs where departments and directorates of the organisation have to record risks and monitor their progress. The risk management processes, namely risk identification, risk assessment, risk treatment and risk review, are based on the AS/NZS 4360 standard for risk management (1999), adopted widely in the N.H.S.

Based on the above, the aim of the research is to investigate how risk management and more specifically risk management processes employed for the creation and management of the risk registers, in a healthcare organisation member of the N.H.S. Trusts in England (U.K.), can be supported by knowledge management. In particular, this research has the following objectives:

- Investigate risk management processes in relation to the risk registers:
  - How are risk management processes, outlined in the Trust's risk management policy and procedures, carried out;
  - how are risk registers developed and maintained in the course of risk management;
  - what are the issues in the management of the risk registers.
- Investigate risk management processes in relation to information and knowledge for the risk registers:
  - What are the information requirements for each risk management process;
  - what are the knowledge requirements for each risk management process;
  - what is the status of existing knowledge;
  - what are the issues regarding knowledge.
- Investigate risk management processes for the risk registers in relation to the stakeholders:
  - Who gets involved in the creation and management of the risk registers;
  - what are the existing relationships among stakeholders in the management of the risk registers;
  - what are the issues regarding the stakeholders and their relationships.

- Investigate how risk management processes for the risk registers can be facilitated by using the required (identified through the research) knowledge. Explore the area of knowledge management for way(s) to facilitate the management of risk registers.

This research is based on a single case study. Inspired by the interpretative paradigm that views the world as socially constructed, thus subjective and tries to understand it as it is, the researcher is influenced by the concepts of Soft Systems Methodology (S.S.M.), as presented in Checkland (1981) and Checkland and Scholes (1999) when investigating the situation based on the perceptions of the stakeholders of risk registers in the Trust (Figure 1-1).

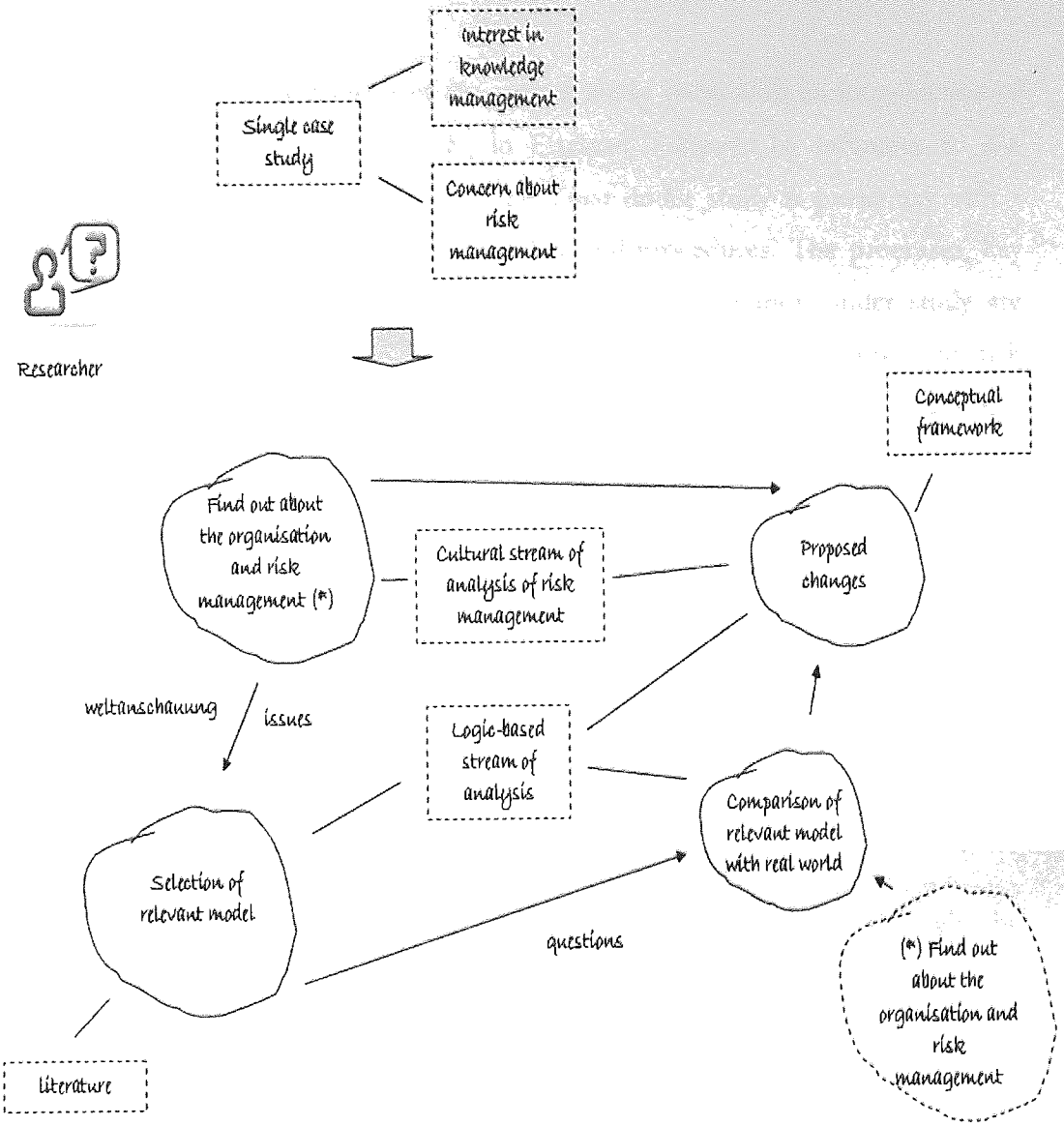


Figure 1-1. Research Process

The following section describes the organisation under study, its environment and the background of risk management, focusing on the risk management processes and the management of the risk registers. It should be noted that due to reasons of confidentiality the researcher does not reveal the name of the Trust under study.

1.2 Case Study

The presentation of the context of the current study starts with an introduction of the National Health Service (N.H.S.) in England, followed by reference to risk management in the N.H.S. Following, the Trust under study is presented with a focus on its risk management strategy, policy and procedures. The processes, key stakeholders and tools for risk management in the organisation under study are described in detail, aiming to familiarise the reader with the context of risk management and the issues discussed in the following chapters of the dissertation.

1.2.1 National Health Service (N.H.S.) in England

The National Health Service (N.H.S.) in England is the publicly funded healthcare system providing healthcare to anyone normally resident in the United Kingdom, in general. The National Health Service Act 1946 came into effect on 5th of July, 1948 and included primary care, in-patient care, long-term healthcare, ophthalmology and dentistry.

The N.H.S. in England is controlled by the U.K. government through the Department of Health. More specifically, the Department of Health controls ten Strategic Health Authorities (S.H.A.s) that supervise all N.H.S. operations and particularly the Primary Care Trusts, in their area.

A N.H.S. Trust is a public sector corporation governed by a board of executive and non-executive directors. In particular, a N.H.S. Foundation Trust, like the organisation under study, is an N.H.S. Trust with a degree of financial and managerial independence from the Department of Health and the local S.H.A. Namely, it is considered "patient-led" and decision-making is partially transferred to local communities, as local people, patients, and staff can become members and governors of the Trust. N.H.S. Foundation Trusts are regulated by an independent body, Monitor.

The following paragraphs outline the basic concepts of governance and risk management and how they are adopted in the N.H.S.

The term "corporate governance" was defined by the London Stock Exchange Committee on Corporate Governance in the Cadbury Committee Report (Committee on Financial Aspects of Corporate Governance 1992). In this report corporate governance is defined as "the system by which companies are directed and controlled", while the boards of directors are responsible for the governance of the companies.

Based on the report "Corporate governance in the N.H.S.: controls assurance statements" (Department of Health 1997), the N.H.S. has responded to the Cadbury Committee Report's requirements for internal control with the introduction of measures of controls assurance, including measures to ensure risks are assessed and properly managed. The control framework that provides the platform for successful leadership within the N.H.S. consists of three overlapping systems: controls assurance, clinical governance and risk management.

The controls assurance standards bring together some of the main legislative and regulatory requirements for the N.H.S. organisations to help the boards of directors to set up systems and develop capability to assess risk and review controls. More specifically as stated in the publication "Governance in the new N.H.S.: controls assurance statements 1999/2000: risk management and organisational controls" (Department of Health 1999a), controls assurance is the process designed to provide evidence that N.H.S. bodies are doing their reasonable best to manage themselves so as to meet their objectives and protect patients, staff, and the public and other stakeholders against risks of all kinds. An outcome of the controls assurance process is an annual statement on the effectiveness of internal controls signed by the Chief Executive on behalf of the Board, known as the Statement on Internal Control (SIC).

In addition, clinical governance is "the system through which N.H.S. organisations are accountable for continuously improving the quality of their services and

safeguarding high standards of care, by creating an environment in which clinical excellence will flourish" (Scally and Donaldson 1998). Boards of directors in N.H.S. Trusts have noticed the overlap between clinical governance, risk management, and control assurance regimes and some have begun to pull them together into a common structure, termed as *integrated governance*. In the "Integrated Governance Handbook" (Department of Health 2006), integrated governance is defined as "systems, processes and behaviours by which trusts lead, direct and control their functions in order to achieve organisational objectives, safety and quality of service and in which they relate to patients and carers, the wider community and partner organisations".

Further, risk management is defined as "the cultures, processes, and structures that are directed towards the effective management of potential opportunities and adverse effects.", by the Australian/New Zealand Standard (AS/NZS 4360 1999) that is adopted by the N.H.S.

Finally, the publication "First Class Service" (Department of Health 1998) defines the risk management agenda for the N.H.S., while national accreditation programmes as the Clinical Negligence Scheme for Trusts (CNST), Risk Pooling Scheme for Trusts (RPST), the Department of Health Controls Assurance Programme, and the Commission for Health Improvement (CHI) set the standards for N.H.S. systems and processes to be implemented as part of risk management arrangements.

1.2.2 The Trust

The Trust under study has achieved its teaching status in 1994 and is one of the largest in England and one of the highest performing in the U.K. The Trust includes three hospitals and one clinic, employs over four thousand people in a multi-disciplinary occupation base and provides over one thousand beds serving over one million people in its area. In 2005, the Trust achieved its foundation status. The Trust Board other than its Chairman and Chief Executive Officer has six non-executive and six executive (medical director for medicine, director of nursing,

medical director for surgery, director of finance, director for human resources and organisational development, director of healthcare governance) directors.

1.2.3 The Context of Risk Management in the Trust

The Trust's "Clinical Governance and Controls Assurance Strategy" ((Teaching) 2003), approved by the Trust Board, outlines the actions to implement clinical governance. Based on this, the principles of clinical governance for the Trust are:

- Clinical governance reports are made to the Strategy Committee and the Trust Board.

- The Chief Executive chairs the Clinical Governance Committee every month. The Clinical Governance Committee is a sub-committee of the Trust Board and has three sub-committees: Clinical Standards, Patient Quality, and Risk Management.

Following the Trust's "Risk Management Strategy 2003/2006" (NHS Trust (Teaching) 2003) has been developed to support the implementation of the vision of the clinical governance and controls assurance strategy. The key statutory requirements for risk management, the Trust has to comply with, are:

- Statutory Controls Assurance Statement of Internal Control (Department of Health 2000a), where it is indicated that the Trust has to produce an annual Statement of Internal Control, signed by the Chief Executive Officer.

- Health Act (Department of Health 1998), where it is stated that the organisation has to provide effective risk management systems to maintain a safe system of care for patients and public.

The key objectives of the risk management strategy are presented in Appendix A. Further, the risk management strategy defines the roles and responsibilities of the Trust Board, the managers, the staff and the committees. The risk management

strategy is implemented through the risk management policy and procedures (NHS Trust Directorate of Corporate Services 2003) and reviewed annually by the Trust Board.

The risk management policy and procedures (NHS Trust Directorate of Corporate Services 2003) outline the Trust's risk management processes, based on the Australian and New Zealand Risk Management Standard (AS/NZS 4360 1999) and includes further the development of a risk register (Figure 1-2).

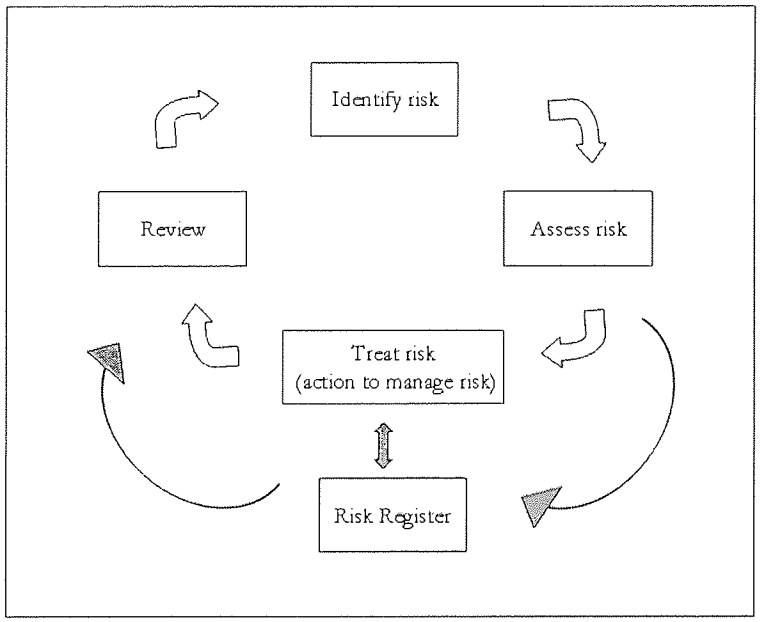


Figure 1-2. Risk management cycle (NHS Trust Directorate of Corporate Services 2003)

More specifically, the risk management processes are: identify risk, assess risk, treat risk, and review risk (Appendix B). In parallel, a risk register is developed by each directorate or each department in a directorate, depending on the size of the directorate. It is a log of all risks that might threaten the organisation in achieving its aim and objectives. The risk register contains information about clinical, financial, strategic, information management, controls assurance, and operational (or non-clinical) risks, for every part of the organisational structure. As shown in Table 1-1, the contents of the Trust's risk register are: brief description of risk, risk score (likelihood x consequences), existing controls in place, actions to be taken, person responsible for plan, funding.

Brief description of risk	Risk score (likelihood*consequences)	Existing controls in place	Actions to be taken	Person responsible for plan	Funding

Table 1-1. Risk Register

In short, risk can be identified by anyone in the organisation through internal and external sources. Risk assessment is accomplished using the risk assessment matrix (Appendix C), where risks are assessed based on the likelihood to occur and their consequences if they occur. Further, a decision is made to reduce, avoid, transfer, or accept risk based on its assessment and an action plan is developed. Finally, risks identified and recorded in the risk register are regularly reviewed (on a quarterly basis). Each directorate's risk register is collated in the Trust's risk register. This is done by the use of DATIX, a database that includes all risk registers and the Trust's risk register.

The Trust expects all directorates, departments, and staff to comply with the risk management approach and follow its policy and procedures. Risk identification is the responsibility of all staff. Moreover, risk assessment, treatment and review is the responsibility of the *risk register lead* appointed in every directorate or department with an active risk register and the directorate management team. The monitoring of the implementation of risk management strategy and risk management policy and procedures is the responsibility of the directorate of healthcare governance. In addition, in this directorate (i.e., directorate of healthcare governance) operates the *Clinical Governance Support Unit (C.G.S.U.)* with responsibility to: collate risk registers centrally on the Trust's risk register; identify and review areas for concern; identify and prioritise risks with impact on multiple areas across the Trust; review risk treatment plans and schedules; populate the Trust-wide risk register; develop a treatment schedule and action plan for the Trust-wide risk register; support the directorates in the management of their risk registers; and communicate to them anything regarding clinical governance and risk management. The C.G.S.U. reports risks from the Trust's risk register to the Risk Management Committee, Clinical

Governance Committee, Operational Board and Trust Board. The C.G.S.U. has three key roles: (a) the *facilitator* dealing with the directorates' risk registers, (b) the *quality improvement officer* dealing with the completion of action plans for the management of risks and the Trust's risk register, and (c) the *audit assistant* dealing with audits in the directorates and circulation of new standards to them.

As inferred from the above description of responsibilities and engagement in the cycle of risk management, directorates are clearly involved in the development and management of their risk registers, committees are involved with high level decision making regarding risk management (e.g., funding), while the C.G.S.U. supports the directorates and communicates issues between the directorates and the committees (Figure 1-3).

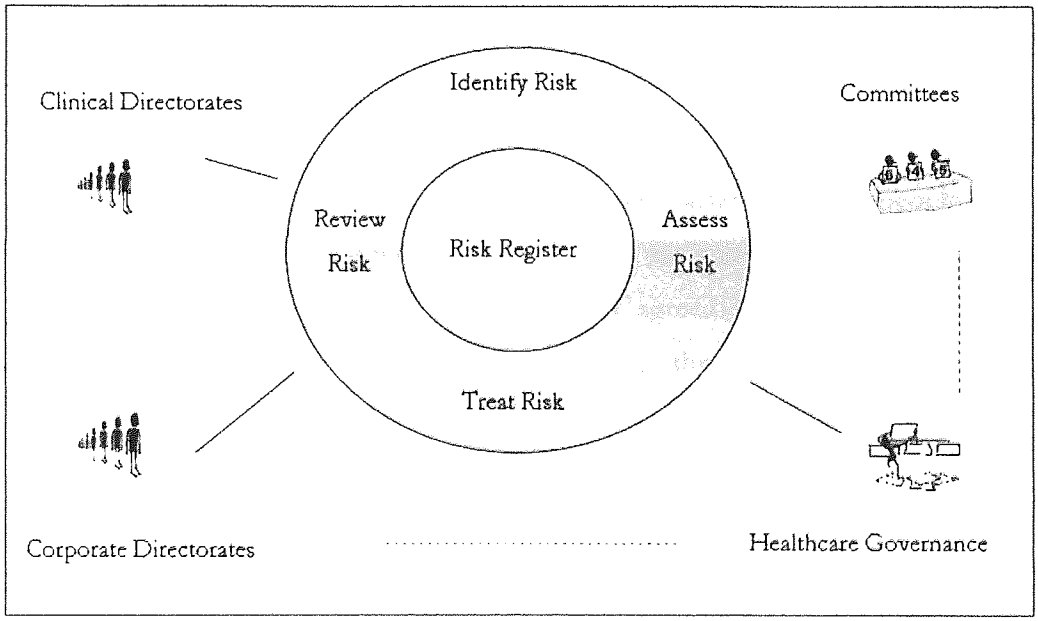


Figure 1-3. Communication and responsibilities in the cycle of risk management

The current research focuses on the development and management of the risk registers along with the risk management processes and investigates how knowledge management concepts could support the improvement of this area of interest.

1.2.4 The Role of the Researcher in the Trust

In 2003, the researcher participated in a meeting with the management of the directorate of healthcare governance. In essence, the corporate and medical directors of the directorate were interested in knowledge management in general and the focal point of the discussion was to find a common area of interest between the Trust and the researcher, who had just joined the Ph.D. programme in Aston Business School. The implementation of the risk management strategy with the use of risk registers was a crucial area for the organisation and both parties agreed on investigating how knowledge management could support or improve the management of the risk registers. From the very beginning of the study, it became clear that the management of the directorate of healthcare governance was especially concerned with the degree of communication among the stakeholders of the risk registers that seemed to inhibit the use of existing expertise regarding risk management when and where required.

The researcher would have access to relevant artefacts and people in the organisation in order to understand how the risk registers should be managed and how they actually are. There was no written agreement specifying any formal deliverables on behalf of the researcher. To the best of the researcher's understanding, the outcome of this study would be a framework of how knowledge management could support the implementation of the risk management strategy of the organisation regarding the risk registers. In any case, the implementation and assessment of any proposed actions were outside the limits of this study.

1.3 Outline of the Dissertation

The following chapter (Chapter 2) presents key concepts from the literature considered relevant to this study. In essence literature on knowledge management, risk management and healthcare management has been reviewed. Chapter 3 (Methodology) outlines the methodological approach that guides the research: presents the dominant paradigms in social science and their influence on the current study, describes the methodological context of the research, i.e., the concepts of

case study research and Soft Systems Methodology (S.S.M.), outlines the research design with the research procedures and the case study protocol, and finally discusses the criteria for quality. Chapter 4 (Analysis) outlines the issues revealed by data analysis following principles of S.S.M. and presents the proposed framework. Chapter 5 (Discussion) discusses the proposed framework along with its implications. Finally, Chapter 6 (Conclusions) summarises the study and discusses its limitations and suggestions for further research.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

The research presented here focuses on a knowledge-related perspective of organisational risk management and proposes a framework for the improved implementation of risk management policies and procedures through the management of risk-related knowledge, in a healthcare organisation, namely a N.H.S. Trust.

This chapter intends to identify, in the literature, concepts related to the research focus of this study. At first, literature on knowledge management is outlined, with the intention to identify the principles that govern the manipulation of organisational knowledge and locate key relevant theories. Due to the interest of the research in healthcare organisations, special reference is made on knowledge management in the healthcare sector. Following, risk management literature is explored, in order to provide the major concerns in the process of planning and maintaining the whole risk management course of action. This section includes risk management issues rising from healthcare management, to cover the special focus of the study in this particular area.

2.2 Knowledge Management

Knowledge management is the "conceptual framework that encompasses all activities and perspectives required to gaining an overview of creating, dealing with, and benefiting from the corporation's knowledge assets and their particular role in support of the corporation's business and operations..." (Wiig 1995). By the same token, in Davenport and Prusak (1998) knowledge management is normally used to refer to those managerial practices that are implemented with the main (or sole) objective to create, store, disseminate and exploit organisational knowledge (1998). Teece (2003) presents a practical knowledge management agenda, first, identifying

the organization's knowledge assets, second, collecting and storing them, and finally delivering the result to the locations where it can be integrated and turned into value.

Literature in the area of organisational knowledge and organisational learning provides definitions and classifications of organisational knowledge (Argyris and Schon 1978; Bose 2003; Nonaka 1994; Nonaka and Takeuchi 1995; Polanyi 1966; Probst et al. 2000; Wiig 1999; Zack 1999). Additionally, literature in the area of knowledge management focuses on defining knowledge, distinguishing knowledge from information, and developing the appropriate methods and techniques to manage knowledge efficiently and effectively. By the same token, literature on the existence and the boundaries of the firm presents knowledge as a vital firm resource and examines its usefulness and ways to manage it successfully. In an attempt to provide some structure in the large body of literature on the aforementioned topic, Wiig et al. (1997) distinguish between the "knowledge object level" that refers to knowledge and knowledge processes and the "knowledge management level" that includes the methods, techniques, and tools to analyse and improve knowledge and knowledge processes.

Following the specific interest of this study in healthcare organisations, relevant literature postulates that knowledge management can support quality of care since "medicine is a knowledge-based profession" (Orzano et al. 2008) and information management is no longer enough for healthcare organisations (Sandars 2004).

The following paragraphs present definitions and typologies of organisational knowledge and outline the knowledge processes, focusing on the concepts that are considered relevant to this study. Finally, arguments regarding knowledge management in the healthcare sector are outlined.

2.2.1 The Context of Organisational Knowledge

Starting with some definitions, the term "knowledge" is often confused with "information". The following definitions are important as in the context of current

research risk and risk management related information and knowledge will be identified and investigated, as discussed in section 1.1.

Ackoff (1989) defines information as data processed to provide answers to "who", "where", "when", "what" questions, while knowledge is the application of information to answer "how" questions. Wiig (1999) names information as "the facts and data organised to characterize a particular situation, condition, challenge, or opportunity". Information is used to describe and specify things (Wiig 2004). On the other hand, he defines knowledge as "the truths, beliefs, perspectives and concepts, judgments, and expectations, methodologies and know-how which is possessed by humans, agents, or other active entities and is used to receive information, recognize, identify, analyse, interpret, evaluate, synthesize, decide, plan, implement, monitor, and adapt". In other words, "knowledge is applied to interpret the available information about a particular situation and to decide how to manage it" (Wiig 1995), knowledge is used to evaluate and handle situations (Wiig 2004). Further, Wiig (2004) presents knowledge consisting of understanding of how to integrate different and sometimes isolated information to create new insights of situations.

Similarly, Bhatt (2001) views information as an "organised set of data" and knowledge as "meaningful information" arguing that only through meaning information becomes knowledge. By the same token, Nonaka and Takeuchi (1995) argue that "knowledge, unlike information, is about beliefs and commitment. Knowledge is a function of a particular stance, perspective, or intention. ...knowledge is about action... knowledge, like information, is about meaning." As stated in Nonaka et al. (2001) "information is a necessary medium or material for eliciting and constructing knowledge." In Nonaka and Takeuchi (2003), knowledge is a reality that can be viewed differently depending on "from which angle (context) one sees it". Probst et al. (2000) define knowledge as the whole body of cognitions and skills which individuals seek to solve problems, including theories and practical everyday rules and instructions for action. Alavi and Leidner (2001) argue that "what is key to effectively distinguish between information and knowledge is not found in the content, structure, accuracy, or utility of the supposed information or

knowledge. Rather, knowledge is information processed in the mind of individuals: it is personalised information related to facts, procedures, concepts, interpretations, ideas, observations, and judgements." In that sense, for individuals to have common understanding on information they have to share a common set of knowledge.

Due to the special interest of this research in healthcare organisations a definition is presented, coming from Bose (2003) who argues that knowledge management treats knowledge as a resource by exercising selectivity and imposing order on information resources, adding structure to information, and proactively capturing information that might be useful in the future.

Summarising the definitions presented above, information is a rather descriptive concept, i.e. information characterises, describes, specifies a situation, while knowledge has a more explanatory nature, i.e. is related with judgement, beliefs, know-how, interpretation, understanding of a situation. In that sense, information can be distinguished from knowledge. However, as shown in Figure 2-1, both are valuable for the organisations; matched information and knowledge support effective decision making. In essence, "pertinent information about situations is required to describe conditions correctly, and competent knowledge is applied to interpret what situations mean and to decide how to handle them to the best advantage." (Wiig 2004) (Figure 2-1)

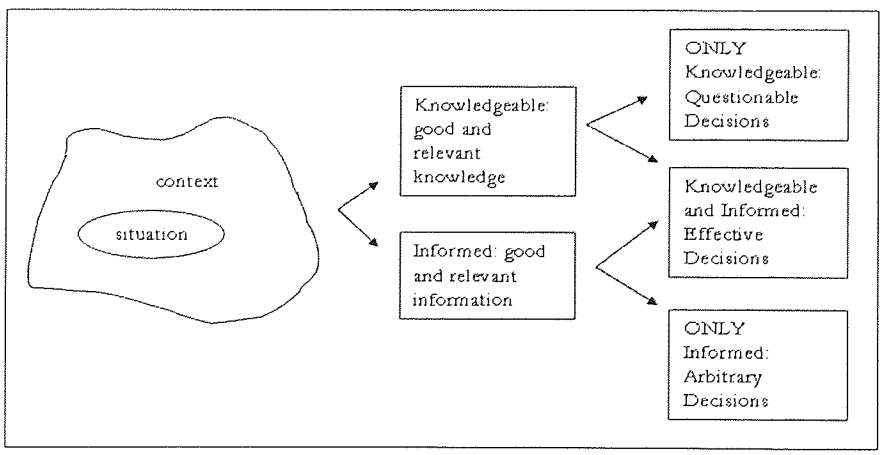


Figure 2-1. Combination of Information and Knowledge for Decision Making; based on Wiig (2004)

Following, discussions on typologies of organisational knowledge are outlined. Cabrera and Cabrera (2002) argue on "the most extended, yet debated..." taxonomic distinction of organisational knowledge along two dimensions: degree of articulation and degree of aggregation (Spender 1996; Nonaka and Takeuchi 1995; Blackler 1995). Based on the degree of articulation, knowledge can be classified as tacit or explicit; based on the degree of aggregation, we can distinguish between individual and collective forms of knowledge (Figure 2-2).

By this token, Nonaka (1994) focuses on individual knowledge and distinguishes between explicit and tacit, based on the work of Michael Polanyi (1966). "Tacit knowledge is deeply rooted in action, procedures, routines, commitment, ideals, values, and emotions" ((Cohen and Bacdayan 1994), (Schon 1983), (Winter 1994) as cited in (Nonaka et al. 2001)). "Tacit knowledge is personal, context-specific, and therefore hard to formalize and communicate." (Nonaka 1994) On the other hand, explicit or "codified" knowledge ... "refers to knowledge that is transmittable in formal, systematic language" (Nonaka 1994).

Furthermore, Spender (1996; 1994) adds collective knowledge and recognises four types of organisational knowledge as shown in Figure 2-2.

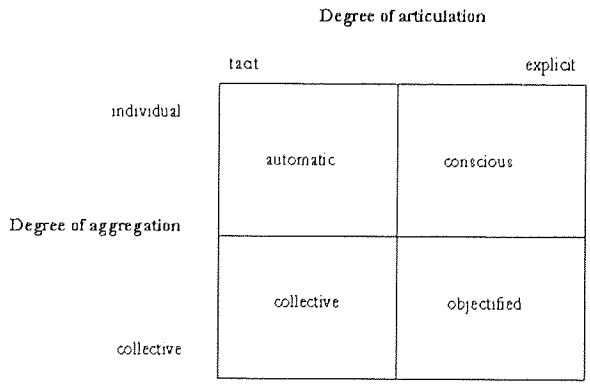


Figure 2-2.Types of organisational knowledge; based on Spender (1996) and Cabrera and Cabrera (2002)

Blackler (1995) also argues on individual and collective knowledge and presents five categories (Figure 2-3):

- Embrained, tacit knowledge that depends on the conceptual skills and the cognitive abilities of individuals.

- Embodied, individual explicit knowledge that is action-oriented and depends on people's physical presence, on sentient and sensory information, physical cues and gestures that are rooted in specific contexts.

- Encultured, collective tacit knowledge that relates with shared understanding. "Such understandings depend heavily on language, and hence are socially constructed and open to negotiation"(Blackler 1995).

- Embedded, collective tacit knowledge that resides in the routines of the system and the relationships among elements of the organisational structure (for example, economic behaviour that is intimately related to social and institutional arrangements).

- Encoded, collective explicit knowledge presented as signs and symbols. Traditional forms of encoded knowledge are books, manuals and codes of practice.

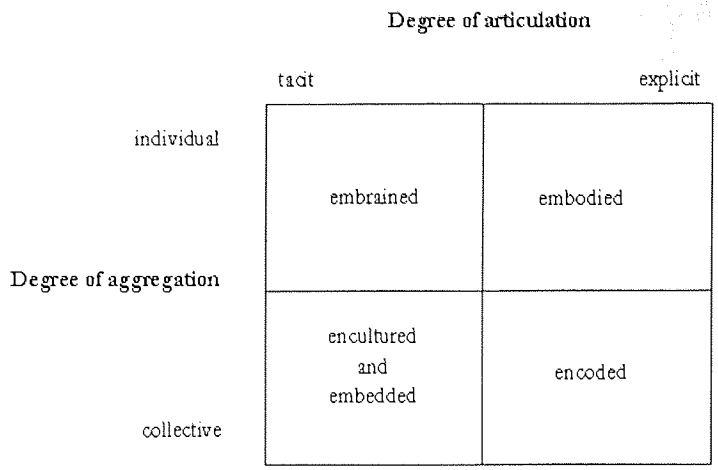


Figure 2-3. Types of organisational knowledge; based on Blackler (1995) and Cabrera and Cabrera (2002)

Similarly, Brown and Duguid (1998) argue on the importance of collective knowledge, that organisational knowledge is "less held by individuals than shared by work groups". Further, they distinguish "know-what", as explicit knowledge and core competencies, from "know-how", as tacit knowledge, which refers to the "particular ability to put "know-what" into practice". "Know-what" is easily transferred and embedded in the work practice, within an organisation. (Cook and Brown 1999)

When Cook & Brown (1999) distinguish between explicit and tacit and individual and group knowledge, they stress that "each form [of knowledge] does work the others cannot". Interestingly, they present a grid that outlines where in an organisation each form of knowledge, combining explicit and tacit and individual and group types, is located. As shown in Figure 2-4, explicit knowledge of individuals is embedded in sets of rules and concepts, while explicit knowledge of groups can be expressed in stories of success or failure. Similarly, tacit knowledge of individuals is found in sets of skills, while tacit knowledge of groups is expressed as

genres that can be appreciated in a context of shared understanding (e.g., a handwritten note, informal meetings).

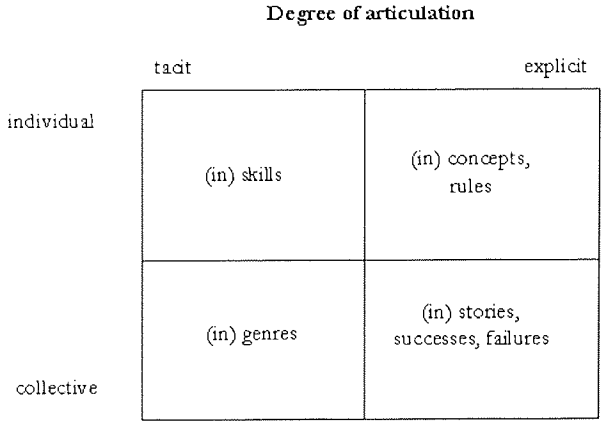


Figure 2-4. Types of organisational knowledge; based on Cook and Brown (1999)

Moreover, Choo (2001) outlines three kinds of knowledge: tacit knowledge "embedded in the expertise and experience of individuals and groups"; explicit or rule-based knowledge "codified in organisational rules, routines, and procedures"; and cultural knowledge "expressed in the assumptions, beliefs, and norms used by members to assign value and significance to new information or knowledge".

Summarising the paragraphs above, explicit knowledge is viewed as more a tangible and easily codified form of knowledge and is thus easily accessible. On the other hand, tacit knowledge is perceived as a more personal form of knowledge that is embedded in skills and expertise. For that reason, tacit knowledge is more difficult to formalise and access.

Besides the distinction between tacit and explicit knowledge, Jasimuddin et al. (2005) present the perspective of "knowledge-as-continuum". Based on several authors (Adler 1995; Cook and Brown 1999; Gourlay 2000; Kogut and Zander 1992; Lave and Wenger 1993; Tsoukas 1996) knowledge is not distinguished in tacit

and explicit; rather knowledge consists of both a tacit and an explicit nature. In that sense, knowledge shared by a group of people is explicit within the group, but tacit outside the group.

It becomes apparent that there is a fine line distinguishing tacit from explicit knowledge, especially when the typologies have to be defined in practical terms, i.e. in a real-life situation, in order to investigate how existing knowledge can be exploited more effectively. Indeed, in this study (as shown in Chapter 4), the researcher tries to distinguish tacit from explicit knowledge to face the practical issue of investigating in detail knowledge related to the risk management processes and the risk registers, in order to propose ways for this knowledge to be accessible where and when needed in the Trust. It is true that some categories of knowledge required for the risk management processes (e.g. *lessons learned, themes, the likelihood of a risk to occur, the consequences if a risk occurs, the appropriate treatment, how to follow up and complete an action plan*) have both a tacit and explicit dimension and they were examined accordingly.

Much later, Spender argues that existing typologies are based on definitions of knowledge, while a typology oriented towards the problems and challenges of knowledge management is required; "the typology we need should be based on the action opportunities open to us as we confront knowledge management's problematics" (Spender 2008). Therefore, he presents an emerging typology: knowledge-as-data, knowledge-as-meaning, knowledge-as-practice. He argues that knowledge management deals not only with moving data around, but with reshaping the meaning people give to data moved elsewhere; for it is data with meaning that produces information. Shaping and reshaping meanings are actions away from cognition ("in-the-mind"); rather they are linked with practice ("in-the-world").

Beyond the different ways of perceiving knowledge, it is considered as a valuable resource for an organisation and its successful utilisation depends on certain qualities. Szulanski (2000) claims that the existence of knowledge somewhere in the organisation does not mean that the whole organisation benefits from it. Further,

Jasimuddin et al. (2005) argue that whether we treat "knowledge-as-continuum" or "as-category", i.e. accept that knowledge can be either tacit or explicit, influences the way it is utilised in an organisation.

According to Wiig et al. (1997) knowledge should be: delivered at the right time, available at the right place, presented in the right shape, satisfactory according to quality requirements, and obtained at the lowest possible cost. Similarly, Skyrme (1999) proposes ten attributes that add value to knowledge: timeliness, accessibility, quality and utility, customisation, contextualisation, connection, refinement, use of meta-knowledge. Cabrera and Cabrera (2002) argue that an interesting characteristic of knowledge is the fact that its value grows when it is shared. On this subject, Quinn et al. (1996) discuss the exponentiality of knowledge and benefits from sharing. Referring to the former, as knowledge is captured and internalised, available knowledge-base becomes higher and the firm gains "knowledge-based competitive edge" that attracts even more knowledgeable people who work on even more complex cases, thus enhancing the knowledge-base. On the benefits from knowledge sharing, they argue that "as one shares knowledge with other units, not only do those units gain information (linear growth); they share it with others and feed back questions, amplifications, and modifications that add further value for the original sender, creating exponential total growth" (Quinn et al. 1996). However, Grant (1997) argues that knowledge transfer from one individual to another is a process that "undermines the efficiencies of specialisation" and proposes combination rather than transfer of specialised knowledge.

By the same token, Rowley (2000) identifies the following characteristics of knowledge: objectivity associated with reliability and accuracy, affecting the creation of a shared reality; accessibility reflected upon the nature of knowledge (i.e., tacit, explicit) and the media of communication; relevance to the situation to be handled; currency; structure and organisation; existence of systems that support knowledge (e.g., frameworks, knowledge management systems, information systems).

On the other hand, the successful exploitation of knowledge in an organisation depends also on characteristics that differentiate knowledge from other

organisational resources. In Wiig et al. (1997) knowledge is intangible, difficult to be measured, volatile, embodied in agents with wills, often increases through use, has wide range of impacts on organisations, can be used simultaneously by different processes. Beckman (1999) adds to this list that knowledge is expensive, often requires hybrid solutions from people and technological systems when used, has a political essence, and its management requires a variety of processes.

2.2.2 Knowledge Processes

One of the most widely cited classifications of knowledge processes comes from Alavi and Leidner (2001). They distinguish the following knowledge processes: creation, storage and retrieval, transfer, and application. Knowledge creation refers to organisational learning and development of new knowledge or replacement/ transformation of existing knowledge (e.g., from tacit to explicit). Storage and retrieval of knowledge is connected with the concept of organisational or corporate memory. Knowledge transfer or knowledge sharing can occur at various levels: between individuals, between groups, between individuals and groups, between organisations, etc. Finally, Alavi and Leidner (2001) relate knowledge application with the integration of knowledge in the organisation, as presented in the knowledge-based view of the firm in Grant (1996).

The following table (Table 2-1) provides a summary, and not an exhaustive list, of existing categorisations of knowledge processes, and is structured based on the aforementioned classification by Alavi and Leidner (2001).

Source	Knowledge Processes			
Alavi and Leidner (2001)	Creation	Storage and retrieval	Transfer	Application
Wiig (1993a)	Creation and sourcing, compilation and transformation		Dissemination	
Marquardt (1996)	Creation, acquisition	Storage	Transfer	Utilisation
O'Dell (1996)	Create, collect, identify	Organise	Collect	Apply, adapt
Ruggles (1997)	Generation: creation, acquisition, synthesis	Codification: capture, representation	Share/ Transfer	
Van der Spek and Spijkervet (1997)	Develop new	Secure new and existing	Distributing	Combine available
Wiig (1997)	Develop	Consolidate (prevent from disappearing, maintain)	Distribute (to the points of action)	Combine (find synergies)
Liebowitz and Beckman (1998)	Create, identify, capture, select	Store	Share, sell	Apply
Ruggles (1998)	Generate new, access from outside	Repository, represent	Transfer	Embed in processes, products, and/ or services, use in decision-making
Van Heijst et al. (1998)	Develop new	Secure new and existing	Distribute	Combine
Skyrme (1999)	Create	Codify, repository		Use
Holsapple and Joshi (2000)	Acquire from external resources, select from internal resources			Internalise, Use
Probst et al. (2000)	Identification, acquisition, development	Retention	Sharing/ distribution	Utilisation
Grover and Davenport (2001)	Generation	Codification	Transfer	Realisation
Liebowitz (2001)	Transform information into knowledge, identify and verify	Organise, retrieve		Apply
Bose (2003)	Creation (acquire and represent)	Structuring (define, store, categorize, index, link)	Dissemination (sharing and collaboration)	Application (retrieve, use)

Table 2-1. Knowledge Processes

2.2.3 Organisational Learning

In the literature of management science, organisational learning is theoretically founded in the seminal work of Cyert and March (1963) and Argyris and Schon (1978). "Organisational learning occurs when individuals within an organisation experience a problematic situation and inquire into it on the organisation's behalf. ... In order to become organisational, the learning that results from organisational inquiry must become embedded in the images of organisation held in its members' minds and/or in the epistemological artefacts (the maps, memories, and programs) embedded in the organisational environment" (Argyris and Schon 1996). Senge (1990) proposes the model of "learning organisation" as an organisation with the ability to learn passively to adapt in situations and actively to create new realities. Further, Wenger (1998a; 1998b) outlines the components of a social theory of learning, where social participation is perceived as a process of learning transforming into "knowing relevant to the environmental context", as: meaning, referred to learning as experience of life; practice referred to learning as doing; community referred to learning as belonging; and identity, referred to learning as becoming, changing who an individual is. The work of Wenger is related to the concept of communities of practice that is discussed in sub-section 2.2.6.

Fiol and Lyles (1985) notice that in the literature, the terms *learning*, *adaptation*, and *change* are all used to refer to the organisation's adjustment to its environment with no consensus in their definition. The following paragraphs of this sub-section refer to the distinction between individual and organisational learning; present the content of learning or different modes of learning; and focus on the different types or levels of organisational learning and the factors that affect organisational learning, based on relevant literature.

A distinction between individual and organisational learning is made in the literature. Individual learning has attained special attention in psychology. Individual learning is important. However, "organisational learning is not just the sum of each member's learning" (Fiol and Lyles 1985). In brief, organisational learning is used "as an analogy of individual learning" and "individual learning is a basis for

organisational learning" (Maier et al. 2001). From this point of view, the implications of individual learning on organisational learning are: learning is not always intentional in individuals or organisations; individuals learn from models they can relate to, like organisations can learn from successes and failures; previous knowledge is always important and its structure influences acquisition of new knowledge in a positive or negative way, e.g., existing knowledge might limit acquisition of new; learning results from making casual inferences; learning is a motivated behaviour. Nevertheless, when using concepts of individual learning for organisational learning one has to bear in mind that knowledge is not equally distributed among all the members of the organisation, not even among the members of the same group.

In organisational learning, Fiol and Lyles (1985) identify two basic dimensions: the content and the levels of learning. The content of learning refers to cognitive development, as patterns of cognitive associations made by the members of an organisation (Hedberg 1981) and behavioural development, as the impact of new interpretations of the members of an organisation on their behaviour (Daft and Weick 1984). Nevertheless, there is a distinction between cognition and behaviour in organisational learning in the sense that, when a change occurs in one it does not imply that the other will change respectively. Knowledge might be created or acquired with no change in behaviour, while changes in behaviour might occur without cognitive development.

Further, cognitive and behavioural adjustment in organisations is associated with the actual levels of learning: cognitive development is linked with low and high learning levels and behavioural development is linked with low and high change levels (Fiol and Lyles 1985). Low and high learning levels refer to the level of insight and association building in an organisation. Lower-level learning occurs within "a given organisational structure", is based on routines and leads to basic (low-level) and short-term changes in behaviour in some parts of the organisation. Argyris and Schon (1978) refer to this type of learning as "single-loop learning", where gaps or errors are detected and eliminated within the existing set of rules in an organisation". Higher-level learning is based on dramatic change of rules, norms,

structures, or insights, usually as a result of a crisis, and leads to long-term impact on the organisation as a whole; the organisation redifines its assumptions in order to answer to a challenge from its environment. Argyris and Schon (1978) refer to this type of learning as "double-loop learning", where incompatible organisational norms are resolved through new priorities and radical changes in the current norms in an organisation. Pawlowsky (2001) describes another level/ type of learning referring to the development of higher-order rules based on experiences and insight. This is what Argyris and Schon (1978) refer to as "deutero-learning" and Senge (1990) as "generative learning".

Finally, on the factors that affect organisational learning, Fiol and Lyles (1985) name: organisational culture that reflects the ideologies, beliefs and established patterns of behaviour and influences the actions of the organisation; organisational strategy that determines the aims and objectives for the organisation and thus creates the boundaries of learning; organisational structure that determines the degree of flexibility of the members of the organisation and influences the limits for a shift in thinking and acting; and organisational environment, either internal or external that might put so much pressure to the organisation so that learning cannot take place.

On the same topic, Schimmel and Muntslag (2009) define the barriers for organisational learning: absence of feedback, neglecting feedback, providing poor feedback, lack of autonomy, speed of change, absence of a dialogue, and absence of experimentation. The strategy, structures, culture and technical infrastructure of an organisation might inhibit free flow of information, underestimate the complexity of social systems, prevent the members of the organisation from changing their behaviour in response to new knowledge, and might not provide any encouragement for dialogue among its members.

2.2.4 Knowledge Creation

Based on Choo (2001) new knowledge is created by knowledge conversion (Nonaka and Takeuchi 1995), knowledge building (Leonard-Barton 1995), and knowledge linking (Badaracco 1991). Nonaka and Takeuchi (1995), on knowledge conversion, argue that the organisation continuously creates new knowledge through a social process of converting between tacit and explicit knowledge. Furthermore, Leonard-Barton (1995), on knowledge building, discusses the activities that build up knowledge to enhance the organisation's distinctive core capabilities. Such knowledge building activities are: shared problem solving, experimenting and prototyping to build new capabilities, implementing and integrating new processes and tools, and importing knowledge. Finally, Badaracco (1991), on knowledge linking, argues that learning alliances between organisations have to be built in order to transfer knowledge. Choi and Lee (2002) argue that without knowledge creation "a business is condemned to obsolescence" and insist that organisations should align their knowledge management strategy with knowledge creation processes.

For the purposes of this study, we focus on the views of Nonaka and Takeuchi (1995). The paragraphs that follow present the model of knowledge creation, based on the work of Nonaka and Takeuchi (1995) and Nonaka et al. (2001).

As already mentioned from the epistemological view of knowledge, Nonaka and Takeuchi (1995) distinguish two types of knowledge: tacit and explicit. Based on the ontological view, they argue that "organisational knowledge creation ... should be understood as a process that "organisationally" amplifies the knowledge created by individuals and crystallizes it as a part of the knowledge network of the organisation. This process takes place within an expanding "community of interaction" which crosses intra- and inter-organisational levels and boundaries." The knowledge-creating concept is based on the dynamic nature of organisational knowledge; as new knowledge is constantly created out of already existing, when organisations define new problems, try to solve and actually solve them.

Organisational knowledge creation is guided by dialectical thinking that synthesises the different but complementary types of knowledge, i.e. tacit and explicit, and evolves from the individual level to the departmental, divisional, and organisational. This amplification of knowledge conversion, between tacit and explicit, as it moves from the individual up to the organisational level is known as "the knowledge spiral" (Nonaka and Takeuchi 1995). In essence, every type of knowledge conversion, as a "continuous and dynamic interaction between tacit and explicit knowledge", in the knowledge spiral is vital for knowledge creation.

Nonaka et al. (2001) propose a multi-layered model for knowledge creation, the layers of which are: (a) SECI, as the knowledge conversion processes: **S**ocialisation, **E**xternalisation, **C**ombination, **I**nternalisation process, (b) "ba", the platform(s) for knowledge creation and (c) knowledge assets, as input, output and moderator of knowledge creation (Figure 2-5). In essence, an organisation using its existing knowledge assets creates new knowledge through the SECI process that takes place in ba. The knowledge created in this context becomes part of the knowledge assets of the organisation, which become the basis for a new spiral of knowledge creation.

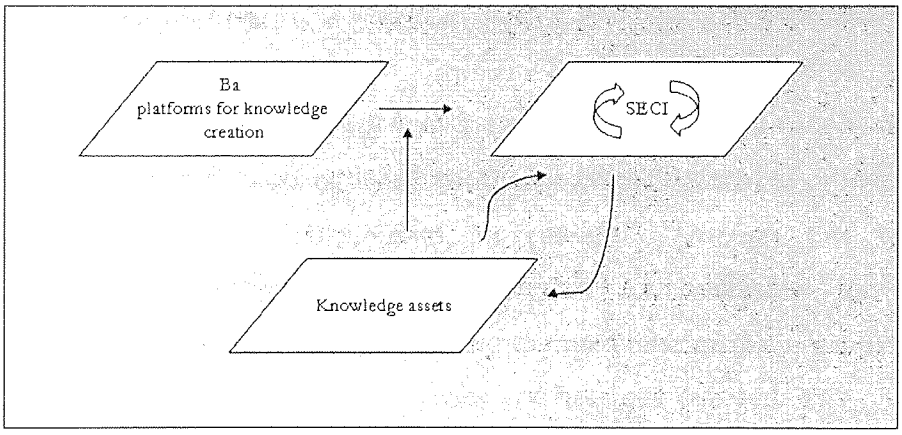


Figure 2-5. Three layers of the knowledge-creation process; based on Nonaka et al. (2001)

The following paragraphs describe the SECI process that is fundamental for this study and the concepts of ba and knowledge assets.

SECI

Nonaka and Takeuchi (1995) and Nonaka et al. (2001) argue on the complementarity of tacit and explicit knowledge, and the significance of their interaction as a social process between individuals. This interaction refers to four modes of knowledge conversion:

(a) *Socialization*, where tacit knowledge is created from tacit, as experiences are shared among individuals in a "field of interaction". Through this type of conversion "*sympathised knowledge*" is created, as shared mental models and technical skills. Socialization that deals with knowledge that is difficult to formalise as it is contextually and culturally constrained (Rice and Rice 2005) depends on the effective communication of worldviews, beliefs, and the existence of a common understanding of the context of knowledge. Therefore, it is the whole working environment and culture of the organisation that allows or inhibits sharing of expertise and the required diminishing of barriers between individuals. Gann and Salter (2000) emphasise the role of factors like proximity, language, and culture when sharing experiences.

(b) *Externalization*, where explicit knowledge is articulated from tacit by dialogue or collective reflection, and tacit knowledge takes "the shapes of metaphors, analogies, concepts, hypotheses, or models." Through this type of conversion "*conceptual knowledge*" is created. Externalization focuses on creative and essential dialogue among the members of the organisation, as the individual interacts with the group and becomes one with it.

(c) *Combination*, where explicit knowledge is created from explicit, as different bodies of explicit knowledge are sorted, enhanced, categorized, and combined in one context. It is crucial to take into account all relevant knowledge that will with combination become a "shared resource" for all stakeholders. (Rice and Rice 2005) Ayas and Zenuik (2001) argue that combined knowledge has to reflect the best and most creative knowledge of

all parts. Through this type of conversion "*systemic knowledge*" is created: prototypes, guidelines, etc.

(d) *Internalization*, where tacit knowledge is created from explicit, as "experiences through socialization, externalization, and combination are internalized into individuals' tacit knowledge bases in the form of shared mental models or technical know-how." Through this type of conversion the individuals access the knowledge of the group and "*operational knowledge*" is created, consisting of knowledge about processes, project management and policy implementation, etc. internalization is linked with "learning by doing". Cross-functional teams and a culture that encourages searching for new values and challenging old ones are elements that influence embodying explicit knowledge into tacit.

Organisational knowledge creation is a never-ending process. From the interaction between tacit and explicit knowledge a spiral emerges that evolves from lower to higher organisational levels. Moreover, even though each one of the conversion modes can create new knowledge it is essential that there is a continuity of the conversion modes. For example, if knowledge goes only through socialisation this knowledge cannot be shared outside the group that has created it. Further, Choi and Lee (2002) in an empirical study observed that the performance and effectiveness of each conversion mode differs among the departments of an organisation.

Ba

Knowledge creation is context-specific; it depends on who participates in it and how. As presented in Nonaka et al. (2001) "*ba*", a concept originally proposed by Kitaro Nishida in 1933 (Nishida 1970), is the context in which knowledge exists, the context of interaction of knowledge among individuals, or groups in any physical, virtual, or mental space. Actually, it is interaction that leads to knowledge creation. There are four types of ba (Nonaka and Takeuchi 1995; Nonaka et al. 2001), based on two dimensions of interaction, the type of interaction, i.e. individual or collective

and the media used for interaction, i.e. face-to-face, on site, collaboration, peer-to-peer (Figure 2-6):

(a) *Originating ba*, where tacit knowledge is shared; it is "the place where individuals share feelings, emotions, experiences, and mental models" through physical interaction. Originating ba provides the context for socialization as face-to-face interaction supports the understanding of emotions, physical senses, etc. this is where the individual "transcends the boundary between self and others".(Nonaka et al. 2000) The concept of originating ba emphasises the need for established communication norms and shared mental models and experiences and focuses on strong personal relationships. (Rice and Rice 2005)

(b) *Dialoguing ba*, where tacit knowledge is converted into explicit; it is "the place where individuals' mental models and skills are converted into common terms and concepts" through dialogue between members of an organisation and reflection on existing mental models. The key for knowledge creation in dialoguing ba is the selection of individuals with the required set of specific knowledge.

(c) *Systemizing ba*, where new explicit knowledge is created by combining existing explicit knowledge, usually on a group-to-group basis, supported by information technology.

(d) *Exercising ba*, where tacit knowledge is created by explicit knowledge, with continuous learning and self-refinement, through on-the-job training and peripheral and active participation, or virtual media. It is when individuals reflect through action.

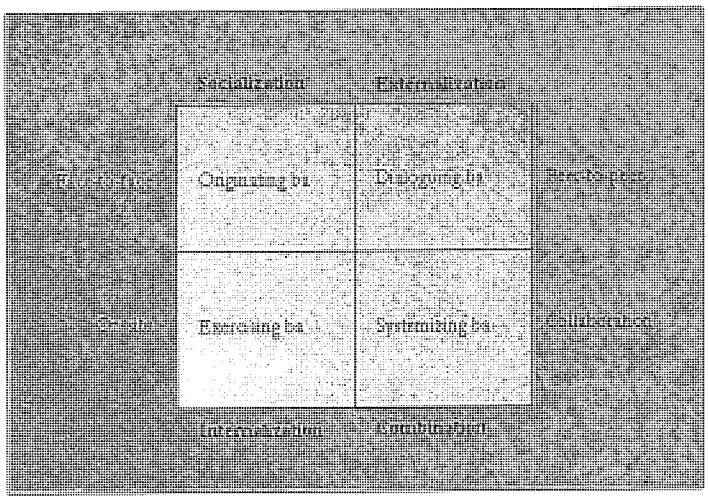


Figure 2-6. Ba, the platform for interaction; based on Nonaka et al. (2001)

Ba can be built by providing physical space such as meeting rooms, virtual space such as a computer network, or mental space such as common goals.

In the literature, there is little empirical research on the operational side of ba.

Knowledge Assets

Knowledge assets are the inputs and outputs and moderators of knowledge creation. Nonaka and Takeuchi (1995) and Nonaka et al. (2001) categorize knowledge assets as:

(a) *Experiential knowledge assets*, as "shared tacit knowledge that is built through hands-on experiences." They are built through socialization have a human nature and are therefore difficult to grasp, evaluate, or exchange. Examples of experiential knowledge assets: skills and know-how, care, love, trust, security, energy, passion, tension.

(b) *Conceptual knowledge assets*, as "explicit knowledge articulated as concepts through images, symbols, and language". They are created through externalization and easier to grasp than the experiential. Examples of conceptual knowledge assets: product concepts, design, brand equity.

(c) *Systemic knowledge assets*, as "systematised and packaged explicit knowledge". They are made through combination and are transferable. Examples of systemic knowledge assets: documents, specifications, manuals, database, patents, licences.

(d) *Routine knowledge assets*, as "the tacit knowledge that is routinised and embedded within the actions and practices of an organisation." They are created and shared through internalization and relate to practical knowledge. Examples of routine knowledge assets: know-how in daily operations, organisational routines, organisational culture.

Regarding knowledge assets Chou and He (2004) have tested empirically their role in the SECI outcome and argue that the presence of certain knowledge assets e.g., organisational routines has impact on the performance of SECI.

In their more recent work, Nonaka and Toyama (2003) advance the theory of knowledge creation through SECI and ba, and approach knowledge creation as "a dialectical process, in which various contradictions are synthesised through dynamic interactions among individuals, the organisation, and the environment." In essence, in knowledge creation, even if contradictions arise, different views of a situation should be well received as they contribute to a comprehensive appreciation of the situation. As a matter of fact, contradictions should be viewed as necessities to create knowledge instead of obstacles to overcome. In view of this, contradictions in the SECI process are managed as follows:

(a) *In socialization*, since tacit knowledge is difficult to formalise and usually time and space-specific, it is shared through direct experiences and individuals embrace contradictions.

(b) In *externalization*, individuals use dialogue to rationalise and articulate their environment, as they realise that a single phenomenon can be viewed in different and contrasting ways. At this stage, contradictions are made explicit and synthesised.

(c) In *combination*, explicit knowledge collected from inside or outside the organisation is processed, combined and further disseminated throughout the organisation. Here, contradictions are resolved, not synthesised.

(d) In *internalization*, where knowledge is applied in practical situations and becomes the basis for new routines; this is when synthesis between individuals and the environment occurs.

Finally, it is the contradictions and all the acting to synthesise them that gives energy to the ba. More specifically, ba needs multiple viewpoints, so that participants can see things and themselves based on their own set of beliefs and values, but from others' viewpoints, as well.

Further to the multi-layered model for knowledge creation presented above (Figure 2-5), Nonaka et al. (2001) discuss how knowledge creation can be managed in an organisation. They emphasise the role of "middle management" as knowledge producers, who actually interact with the top and bottom of the organisation. More specifically, they argue that the traditional "top-down" and "bottom-up" management approaches fail to consider the creation of knowledge as a process of interaction between individuals and their environment and propose the "middle-up-down" model. Based on this model, top management develops the vision to base general directions, while middle managers, i.e., team leaders or of equivalent levels in the hierarchy, "translate these visions into more concrete concepts" and facilitate knowledge creation in the whole organisation.

In other words, top and middle management "read the situation" (Nonaka et al. 2000) and work on the three elements of the knowledge-creating process (SECI, ba, and knowledge assets). The top management provides the knowledge vision that defines the fundamental issues for knowledge creation, such as "what should we create", "how can we do it", and synchronises the whole organisation to continuously create knowledge based on the organisational norms, routines and skills. Following, the middle management has to break down the vision into operational concepts to put the knowledge-creating process into practice. It is

important to have "knowledge producers" who know where to find the knowledge required and the people who can support all four modes of knowledge conversion. However, the most significant contribution of the "knowledge producers" is made in externalization, when tacit knowledge has to be incorporated in a more explicit form in the organisation.

The SECI model is well accepted in a variety of fields like, organisational learning, new product development, joint ventures, and information technology. (Choi and Lee 2002; Kidd 1998) However, the model for knowledge creation has also received strong criticism. As already discussed in sub-section 2.2.1, in relation to the perspective that views "knowledge-as-continuum" and does not advocate the distinction between tacit and explicit knowledge, several authors (Adler 1995; Gourlay 2000; Spender 2008; Tsoukas 1996) postulate that there is a misinterpretation of Polanyi's (1966) work, as Polanyi advocated a common structure of all kinds of knowledge. Especially in Tsoukas (1996) tacit and explicit knowledge are considered "mutually constituted" and therefore cannot be considered as different. Tsoukas (2003) and Gourlay (2000) claim that tacit knowledge cannot be converted into explicit; Gourlay (2000) suggests for the knowledge creating model to take into account "both inherently and contingently tacit knowledge", to encounter for the tacit knowledge that cannot be converted into explicit. Glisby and Holden (2003) elaborate on this, arguing that converting tacit knowledge into explicit one looses the context in which the knowledge was created. By the same token, Tsoukas (2003) notices that there is always an "ineffable element" in tacit knowledge. Even on the concept of typology per se, Tsoukas (1996) argues that typologies are "based on the assumption that an observer is able to discern certain systematic similarities and differences (i.e., forms) between the objects of study". On the criticism of Nonaka's conversion of tacit knowledge into explicit, Wyatt (2001) from the field of healthcare pinpoints that much of the medical progress is, actually, realised through this conversion among different groups.

Second, Gourlay (2000) and Glisby and Holden (2003) comment on the context of the model; that is to say, Nonaka and Takeuchi (1995) knowledge-creating ideas are

based on cultural practices relevant to Japanese management and innovative organisations and on the assumption that individuals are willing to share knowledge. Especially, Glisby and Holden (2003) argue that Japanese organisations encourage strong relationships and collaborative culture that is required in socialization; invest time and resources for externalization; lack internal rivalry and short-term task orientation that inhibits combination; and practice job rotation that enhances internalization. On the other hand, Glisby and Holden (2003) doubt whether organisations worldwide operate like this. In a study in Chinese and Arab organisations, Weir and Hutchings (2003) argue that SECI can be applied also outside a Japanese context.

Third, Gourlay (2000) pinpoints that Nonaka and Takeuchi (1995) refer to a subjective definition of knowledge; namely from the managers' point of view.

2.2.5 Knowledge Storage and Retrieval

Taking into account existing work about organisational or corporate memory, Stein (1995) gives the following definition: "Organisational memory is the means by which knowledge from the past is brought to bear on present activities, thus resulting in higher or lower levels of organisational effectiveness." The following paragraphs present the concept of organisational memory and outline the types of organisational memories and the categories of their contents.

Organisational memory is a generic concept used to describe saving, representing, and storing organisational knowledge (Croasdell 2001). In organisations, the lessons of experiences can be accumulated and maintained in routines despite turnover of personnel or passage of time. (Levitt and March 1988) The rules, structures, beliefs, technologies, and procedures maintained, are retrieved through mechanisms from a memory structure. Recollections of past events help members of the organisation to understand the context of a situation and learn how the organisation has reacted in the past, thus avoiding "reinventing the wheel". (Croasdell 2001) However, only a part of the organisational memory can be retrieved at a particular time and from a particular part of the organisation. Referring to the specific interest of this study in

healthcare organisations, Nicolini et al. (2008) notice the paradox created due to proliferation of medical knowledge and information: doctors are overwhelmed with information but cannot find something in particular when and where they actually need it. In essence, Levitt and March (1988) argue that recently and frequently used routines are more easily retrieved. Similarly, routines relevant to lessons from experience are embedded in organisational responsibilities and thus retrieved more easily.

Walsh and Ungson (1991) view the connection between past and present decision making situations as the purpose of organisational memory and identify the following "components" of organisational memory: individuals that have their own memories; culture as a "learned way of perceiving, thinking and feeling about problems" in an organisation; transformations, as the processes of an organisation; structures that influence the behaviour of individuals; ecology as the physical environment of an organisation; external archives. Similarly, for Moorman and Miner (1997) organisational memory resides in: cognitive elements such as organisational beliefs, knowledge, frames of reference, models, values, and norms; the organisation's experiences as encoded in behaviour; and physical artefacts, such as organisational structure and physical layout.

Further, on the structural aspect of organisational memories, Lehner and Maier (2000) present a layer model of an organisation's knowledge base (Figure 2-7) that represents the structure of the knowledge base, adapted from the work of Pautzke (1989):

Layer 1. Knowledge shared by all employees in an organisation: The knowledge base consists of a common language (stories, myths, sagas, rituals, etc.) and common values and norms as prescribed by the organisational culture.

Layer 2. Accessible individual and collective knowledge: This layer refers to knowledge owned by an individual but not necessarily available to the organisation. Three strategies are identified to make individual knowledge accessible to the whole organisation: (a) an employee implicitly transfers knowledge, e.g., through

participation in a decision making process, (b) an employee transfers knowledge to a group in the organisation, e.g., through discussions, (c) an employee deliberately publishes knowledge.

Layer 3. Non-accessible individual and collective knowledge: This layer refers to knowledge not transferred because of fear of change that might come from new knowledge, inadequate ability of departments in an organisation to recognise relevance of new knowledge to their own affairs, or loss of power. Relevant reasons are presented extensively in following paragraphs, when discussing the barriers for knowledge transfer (sub-section 2.2.6).

Layer 4. Meta-knowledge of the environment: This layer refers to knowledge that resides outside the organisation.

This model aims to guide the infrastructure of organisational memories, so that the organisational knowledge base can be used, managed, and improved.

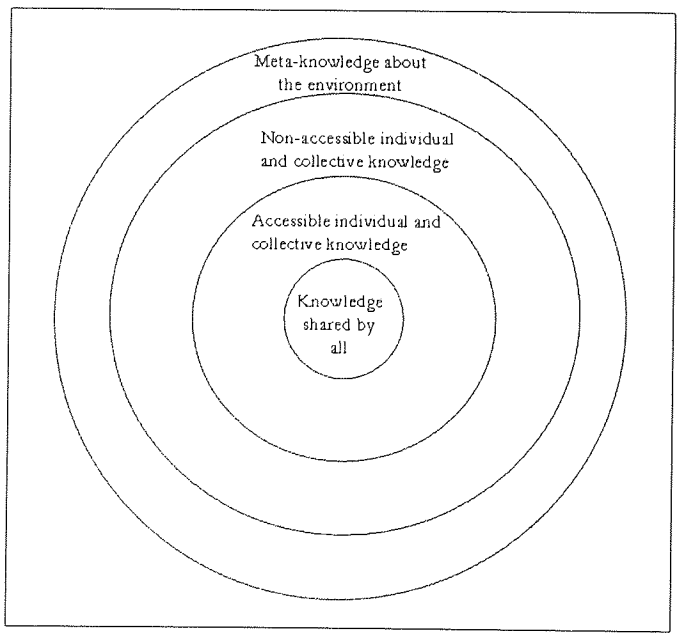


Figure 2-7. Organisational knowledge base layer model; based on Lehner and Maier (2000)

Further, Stein (1995) presents a classification of the contents of organisational memories in terms of the "level of abstraction (concrete vs. abstract)" and

"normative orientation (prescriptive vs. descriptive)" of knowledge (Stein 1989; 1995) (Figure 2-8).

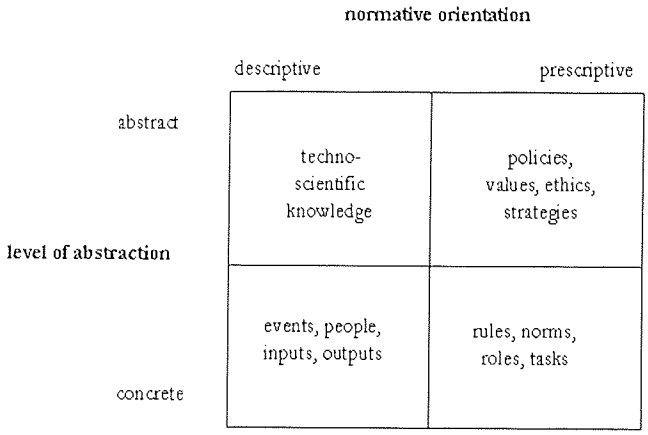


Figure 2-8. A typology for the contents of organisational memory; based on Stein (1989; 1995)

Organisational memories can be repositories of messages, where there is no need for synchronisation or direct interaction between sender and recipient. However, the dimension of time is crucial in organisational memories; there are short and long term organisational memories. "Duration within an organisation relates to the rate of organisational and environmental change, and the perceptions of the stakeholders." (Stein 1995)

Stein (1995) distinguishes three types of organisational memories, based on the time between encoding and sending a message: (a) information is encoded but not received immediately (e.g., paper files, executive directives), (b) messages remain in continuous transmission being passed among several nodes/ receivers, intentionally or unintentionally (e.g., oral traditions), and (c) messages of extended duration that can be used in the future (e.g., stored e-mails).

Finally, Van Heijst et al.(1997) name two types of organisational memories based on the forms of learning in the organisation: (a) *top-down* or *strategic* where a knowledge area is considered interesting at a management level and actions for its acquisition and distribution are taken, and (b) *bottom-up*, where the lower levels in the hierarchy of an organisation learn and distribute, throughout the organisation, some piece of knowledge that might be proven useful.

2.2.6 Knowledge Transfer

The following paragraphs present the stages of knowledge transfer as perceived by Szulanski (1996), define the channels and relevant mechanisms for knowledge transfer, discuss "Communities of Practice" (CoPs) as a fundamental concept in knowledge transfer and outline the barriers, enablers, and issues to be considered regarding knowledge transfer in organisations.

Szulanski (1996) distinguishes four stages in the process of knowledge transfer: (a) *initiation*, when need for knowledge and the knowledge to cover that need coexist followed by exploration of the feasibility of transfer, (b) *implementation*, when the flow of knowledge between source and recipient takes place, (c) *ramp-up*, when the recipient starts using the new knowledge, (d) *integration*, when the new knowledge becomes "routinised" as the recipient achieves satisfactory results by using this knowledge.

Alavi and Leidner (2001) define informal or formal and personal or impersonal channels through which knowledge is transferred. Informal channels such as unscheduled meetings and informal seminars are ideal for small organisations, however, the transfer of knowledge is not guaranteed. Davenport and Prusak (1998) argue on the efficiency of spontaneous and unstructured forms of knowledge transfer: "conversations at the water cooler or in the company cafeteria are often occasions for knowledge transfer". Webber (1993) observes that "...conversations are the most important form of work. Conversations are the way knowledge workers discover what they know, share it with their colleagues, and in the process create new knowledge for the organisation." On the other hand, formal channels,

including meetings and training sessions might provide more guaranteed levels of knowledge transfer but might also limit creativity.

Chen et al. (2006) discuss channels for transfer of organisational knowledge and distinguish between social and electronic networks. In essence, social networks facilitate face-to-face contact and the development of relationships among the members of an organisation (Dyer and Nobeoka 2000). Electronic networks assist rapid transfer of explicit knowledge with low communication cost. Similarly, in the healthcare literature, Orzano et al. (2008) distinguish between knowledge sharing with emphasis on technology (Alavi and Leidner 2001; Zack 1999) and emphasis on social structures and human factors like, trust, ability to learn, ability to collaborate.

Further, the choice between personal channels for knowledge transfer, such as apprenticeships and personnel transfers, and impersonal channels, such as knowledge repositories, depends on the type of knowledge that has to be transferred (e.g., context specific knowledge is easily transferred through personal channels). Davenport and Prusak (1998) discuss the requirement for personal contact when tacit knowledge is to be transferred. From a practical point of view, they state that companies often organise formal mentoring programmes and make transfer of knowledge part of the job description of senior employees. Especially, in reference to healthcare organisations, Gabbay and Le May (2004) and Tagliaventi and Mattarelli (2006) emphasize the role of informal networks and communities in transferring knowledge among healthcare professionals. Similarly, Donaldson et al. (2005), argue that the flow of knowledge in teams that are not part of the formal organisational structure, in the form of conversations and stories, "generates new ways of thinking and practicing, and may also result in tangible 'products', such as documents, standards, and major programmes."

Hansen et al. (1999) present codification and personalisation as organisational strategies for knowledge management. Namely, codification refers to formal mechanisms of knowledge sharing that involve the use of documentation, document management systems and databases, while personalisation is informal and involves personal contact since in that case knowledge is tied with people. With

codification, a large amount of knowledge can be stored, but the cost in resources should also be considered. On the other hand, with mechanisms for personalisation information and knowledge can be adapted to a particular situation and can lead more easily to creation of new knowledge. However, it entails the risk of locating the right person who is also available and willing to share. As Wyatt (2001) argues, for healthcare organisations, personalisation refers to providing problem solvers with the means to identify experts and communicate with them. In healthcare organisations both strategies are essential. Wyatt (2001) advocates that units dealing with routine cases could benefit from codification, while units that require creative and ad hoc solutions could use personalisation. Nevertheless, the access to codified knowledge and its actual use are problematic: clinicians, as "highly educated analytical thinkers with individual streak", are reluctant to share or apply codified knowledge created by others.

Further, Bresnen et al. (2003) accentuate the importance of social structures and communities in knowledge transfer. They argue that the diffusion of knowledge requires a level of shared meaning that allows social communities to understand the insights of another community. Brown and Duguid (1998) note that organisational knowledge is created and possessed by "hybrid groups of overlapping and interdependent communities", known as "communities of practice (CoPs)"; a notion presented in Lave and Wenger (1993). "Community of practice" is a group with shared "know-how" and common understanding or sense making" (Brown and Duguid (1998). More specifically, Cook and Brown (1999) claim that groups possess the "body of knowledge", while not everyone in a group possesses the whole "body of knowledge". By the same token, Czarniawska-Joerges (1992) (as quoted in Boland and Tenkasi (1995)) discusses how different communities of knowing might look at the same situation, but see different problems, opportunities, challenges, and threats.

The three dimensions of community of practice, according to Wenger (1998a; 1998b), are: mutual engagement, joint enterprise, and shared repertoire. As discussed in Furlong and Johnson (2003), practice in a community requires engagement of people in activities, in order to negotiate their meanings to specific

situations. Mutual engagement does not imply heterogeneity is not acceptable, rather individuality should be encouraged. However, a degree of homogeneity is essential so that members of a community work together. In addition, joint enterprise provides the source to transform individual needs and beliefs into explicit and tacit group practice, and promotes mutual accountability to decisions. Last but not least, shared repertoire refers to sets of resources for negotiating meaning, such as routines, words, methods, discourses, tools, stories, activities, processes, behavioural norms, perceptions, concepts. Wenger (1998a), focuses, particularly, on the role of discourse as "a reflection of an enterprise" and a "social resource for creating and developing useful statements for coordinating a CoP's [community of practice] practice of the world, as it is based on beliefs, paradigms and schemata unconsciously used for judgements". Wenger and Snyder (2000) stress the importance of free flow of experiences within a "community of practice".

Compared to the concept of "ba" presented above, there seem to be some similarities to the concept of communities of practice. However, there are important differences, as well (Nonaka and Toyama 2003; Wenger 1998a). In a community of practice members learn knowledge embedded in the community, while ba is the context of knowledge creation. A community of practice has an identity and boundaries firmly defined by the task, culture, and history of the community, while the boundary of ba is set by the participants and can be changed quickly. Further, the membership of a community of practice is rather stable, and it takes time for a new participant to learn about the community to become a full participant, whilst in ba participants come and go.

Regardless of the importance of the strengths and potential benefits from communities of practice, as they are presented in the literature, Furlong and Johnson (2003) claim that the nature of a community of practice might inhibit participation of new members and thus restrict adaptive change as a response to environmental change. In other words, "communities of practice" might be bounded by their specialised knowledge. "Members of the same community of knowing will not have full consensus, and members of different communities cannot simply adopt the meanings of another." (Boland and Tenkasi 1995) It is

relations among different communities and flow of knowledge that allow the organisation to develop new collective knowledge, as "organisational know-how". Moreover, for knowledge to be transferred more effectively and in order for it to be useful elsewhere in the organisation, it has to be accompanied by practice; that is "know-what" requires "know-how". Depending on whether knowledge is to be transferred within or between communities, different mechanisms are required. Within a community, people share a common language and understanding, so knowledge is embedded in practice. Practice is related to the organisational routine utilisation of knowledge and is embedded partly in individual skills and partly in "collaborative social arrangements". (Kogut and Zander 1992; Nelson and Winter 1997; Szulanski 1996) For knowledge transfer between different communities, Brown and Duguid (1998) propose the use of:

- Translators, "individuals who can frame the interests of one community in terms of another community's perspective".

- Knowledge brokers, who participate in the communities that have to communicate.

- Boundary objects, "objects of interest to each community involved but viewed differently by each of them". As Star (1989, 1993) [in (Boland and Tenkasi 1995)] has observed, different groups find a way of bringing their distinctive perspectives into dialogue through "the construction and discussion of boundary objects", as a visible representation of an individual's knowledge. Such boundary objects might be physical models, spreadsheets, diagrams, cognitive maps, and narrative structures. Brown (1981) (as cited in Boland and Tenkasi (1995)) claims that perspective taking involves personal judgement, where individuals have their "own understanding visible for self-reflection". This is when the boundary object is created.

Similarly, Boland and Tenkasi (1995) present the concepts of "perspective making" and "perspective taking". In essence, "perspective making" refers to communication that strengthens the unique knowledge of a community, while "perspective taking"

refers to communication that involves taking the knowledge of other communities into account. They argue that narration and rational analysis of experiences support perspective making and perspective taking as well. "The narrative capability of humans is a fundamental cognitive process through which our cultural world and sense of self are constructed and maintained over time." ((Bruner 1990; 1986) as quoted in Boland and Tenkasi (1995)). Arguments and stories are examples of narratives. For an argument to be good it has to be "logical, coherent, consistent, and non contradictory", whereas a story has to be "interesting, plausible, and believable" (Boland and Tenkasi 1995). However, arguments considered to be "good" by a community of knowing might have no weight in another. Regarding stories, Brown and Duguid (1991) discuss their "flexible generality", as they can present and interpret a new situation based on "accumulated wisdom". Stories can support the diagnosis of a problem and create the causal relationships of a situation. Wiig (2004) postulates that through stories people gain deep understanding of how to handle situations and tend to "internalise the approaches to handle such situations as second nature".

As mentioned above for stories to be useful especially when existing documentation (manuals, instructions, etc.) is not enough, organisations must encourage less formal and more practice-based ways of working. In view of this, Wiig (2004) argues that stories can provide insights into culture and ideologies and develop understanding of "complex aspects of approved and accepted behaviours, societal aspects...".

Finally, Prusak (2005) presents categories of stories in organisations: stories about other people, where the motivation is the reliability of the person; stories about the work itself, i.e., the nature of the work; stories about the organisation; stories for social bonding, e.g., before a meeting; stories about the past that bond people and have the power even to constrain future behaviours; stories about the future regarding mission statements and the vision of an organisation; stories about life; stories about oneself.

Further, regarding the channels of knowledge sharing, in communities of practice, formal documentation, written communication (e.g., e-mail), and technology in

general (e.g., intranets) might limit free interaction between communities or within communities, as they require the use of formal language. Similarly to the aforementioned views of Davenport and Prusak (1998) on knowledge transfer, Brown and Duguid argue that "e-mail should not replace the coffee pot and the water cooler" (1998).

Despite the rising understanding of the importance of knowledge transfer within an organisation, it is widely acceptable that knowledge transfer is not easy. Szulanski (1995) explores the origins of stickiness in knowledge transfer, based on the mathematical theory of communication (Shannon and Weaver 1949) and the analysis by Arrow (1969). He discusses the factors that might cause difficulties in knowledge transfer (Szulanski 1996; Szulanski 1995) and distinguishes between factors referring to the knowledge transferred and those referring to the situation in which knowledge is transferred.

Factors referring to the knowledge transferred:

(a) *causal ambiguity*, because of the tacit nature of knowledge or limited understanding of the new context where the new knowledge will be applied, and

(b) *unproven* prior usefulness of the new knowledge.

Factors referring to the situation in which knowledge is transferred:

(a) *lack of motivation of the source*, as knowledge transfer might cause loss of authority, superiority and power or simply the source is not able (or willing) to devote scarce resources and the source is *not perceived as reliable*,

(b) *lack of motivation of the recipient* to adopt new knowledge (NIH, Not Invented Here syndrome),

(c) *lack of absorptive capacity* of the recipient as a result of the recipient's limited prior knowledge and the ability to appreciate new knowledge, as well as *lack of retentive capacity*,

(d) *barren organisational context*, when formal structures and systems affect the degree of utilisation of new knowledge, and

(e) *arduous relationships* between source and recipient, especially for the transfer of tacit knowledge.

Especially, on *absorptive capacity*, Cohen and Levinthal (1990) discuss the differences between an organisation's absorptive capacity and that of its individuals. The absorptive capacity of an organisation depends on the absorptive capacity of its members. However, organisational absorptive capacity is not just the sum of the ones of the employees. It depends on the degree of knowledge transfer among different groups in the organisation. They argue that accumulated prior knowledge increases the ability to put new knowledge into memory (i.e., acquisition of knowledge) and the ability to use knowledge. As argued by Levitt and March (1988) (sub-section 2.2.5), learning has an associative character, in the sense that new events are remembered through linkages with pre-existing. In view of this, Tsoukas (1996) based on Winograd and Flores (1987) states that lack of common background might lead to misunderstandings.

To the factors that delay or inhibit knowledge transfer, Cabrera and Cabrera (2002) add cost: "yet, as modest as it may be, the cost of sharing the idea is real. Putting the documents together and making the contribution consumes valuable time that might otherwise be invested in tasks with clearer returns (sales commissions, measurable performance)."

Furthermore, Davenport and Prusak (1998) present the cultural factors that restrain knowledge transfer and ways to overcome them (Table 2-2).

Factor that restrains knowledge transfer	Possible solution
Lack of trust	Face-to-face meetings
Different cultures, vocabularies, frames of reference	Education, discussion, publications, teaming, job rotation
Lack of time and meeting places; narrow idea of productive work	Fairs, talk rooms, conference reports
Status and rewards go to knowledge owners	Evaluate performance based on knowledge sharing
Lack of absorptive capacity of recipients	Education (for flexibility), provide time for learning, welcome new ideas
Belief that knowledge is prerogative of particular groups, not-invented here syndrome	Non-hierarchical approach to knowledge; promotion of quality of ideas vs. status of resource
Intolerance of mistakes or need for help	Acceptance and tolerance for creative errors; no loss of status from not knowing everything

Table 2-2. Factors that restrain knowledge transfer; based on Davenport and Prusak (1998)

Finally, Cabrera and Cabrera (2002) see as incentives for people to contribute what they know: good reputation, status improvement, satisfaction from doing the right thing, hopes of reciprocity, serving as a good example for others to follow. They propose managerial interventions to support knowledge sharing. The first potential solution to knowledge-sharing dilemmas consists of restructuring the payoff function. The second type of solution focuses on increasing perceived efficacy of individual contributions. "Individuals are more willing to participate if they believe their contributions will be valuable to others." One way to increase both the perceived efficacy of individual contributions and perceived connective efficacy in the context of knowledge exchange is to establish mechanisms by which employees receive feedback whenever others use their contributions. A final potential solution to increasing employees' perceived efficacy is via training, in how to make contributions and how to search for what they need. Finally, establishing group identity and promoting personal responsibility are also useful ways of increasing cooperation in a knowledge-sharing dilemma.

On group identity, Dutton et al. (1994) argue that "organisations have collective identities consisting of the beliefs that members share as distinctive, central, and enduring". When members of the organisation define themselves with attributes

that overlap with the attributes they use to define the organisation, they are strongly identified with the organisation. However, when an organisation's actions are inconsistent with the collective organisation identity, individuals start acting contradictory to the previously perceived collective identity. In this case, organisational routines are interrupted and the behaviour of individuals is likely to change.

When people identify with their organisation, their sense of survival is tied to the survival of the whole organisation. This is when cooperation is enhanced and additional effort is put to support the co-workers. On the other hand, this might increase competitiveness among different groups/ teams in the organisation. In view of this, Choo (2001) sees the definition of an organisational identity as the establishment of "norms and expectations about the propriety, accountability, and legitimacy of the organisation's choices and behaviours". Kogut and Zander (1996) argue that shared identity "establishes explicit and tacit rules of coordination". Knowledge is transferred more effectively among individuals who identify with a certain group that has a shared sense of purpose.

In parallel to the barriers and enablers of knowledge transfer that have to be taken into consideration, Dyer and Nobeoka (2000) present three key issues to be considered regarding knowledge transfer:

- motivation of people to share valuable knowledge openly with other members of the organisation;

- prevention of "free riders", where "free riders" are members of an organisation who benefit from common good without contributing to its development or maintenance;

- increase of efficiency of knowledge transfer among a large group of members of an organisation, where efficiency is defined as the speed and ease of access to required knowledge.

2.2.7 Knowledge Application: The knowledge-based view of the firm (KBV)

This sub-section presents the knowledge-based view (KBV) of the firm that stems from the theory of the firm and its two main streams of argument about the reason why firms have performance differences (i.e., Transaction Cost Economics theory, TCE, and the Resource Based Theory, RBT) and focuses on the importance of knowledge integration in the organisation.

Grant and Baden-Fuller (1995) present the "knowledge-based view of the firm" as "an emerging theory of the existence, organisation, and competitive advantage of the firm which (is) based upon the role of firms in creating, storing and applying knowledge." Similarly, as stated in Grant (1997) the KBV of the firm "explains the rationale for the firm, the delineation of its boundaries, the nature of organisational capability, the distribution of decision-making authority and the determinants of strategic alliances". In other words, the KBV attempts to identify organisational processes, structures, and strategy related to the exploitation of knowledge, to support the organisational mission and goals. Nonaka et al. (2001) accentuate the importance of distinguishing the knowledge-based perspective of organisations from the information processing paradigm; rather than merely processing information and solving problems, organisations "create and define problems, develop and apply new knowledge ... and develop new knowledge through problem solving activities." (Nonaka et al. 2001)

The assumptions of the KBV are (Grant 1997):

(a) Knowledge is the most important and strategically significant productive resource.

(b) Different types of knowledge vary in their transferability. The critical types of knowledge are explicit and tacit. Knowledge transferability depends on the type of knowledge and the capacity of the recipient to aggregate units of knowledge.

(c) Individuals are the primary agents of knowledge creation and the principal repositories of tacit knowledge. Knowledge creation should be based on specialisation if the individuals' learning capacity is bounded.

(d) Explicit knowledge can be deployed in various applications at low marginal cost.

(e) Producing a good or service typically requires the application of many types of knowledge (Kogut and Zander 1992).

Grant (2001) discerns two major knowledge-based activities: (i) increasing the stock of knowledge or what Spender (1992) (as cited in (Grant 2001)) calls "knowledge generation" and (ii) deploying knowledge in order to produce goods and services or what Spender (1992) (as cited in (Grant 2001)) calls "knowledge application". While knowledge creation requires specialisation, knowledge application requires diversity of knowledge. "The firm is an institution which exists to resolve this dilemma: it permits individuals in developing expertise, while establishing mechanisms through which individuals coordinate to integrate their different knowledge bases in the transformation of inputs into outputs." (Grant 1997)

Demsetz (1991) (in (Grant 2001)) argues that knowledge integration actually permits individuals to apply their knowledge to the production of goods and services, while preserving the efficiencies of specialisation in knowledge acquisition.

Grant and Baden-Fuller (1995) and Grant (1997) identify the following mechanisms for knowledge integration: transfer, direction, sequencing, and routines. Knowledge transfer from one individual to another is a process that "undermines the efficiencies of specialisation" Grant (1997). For this reason knowledge integration should focus more on the combination of specialised knowledge, which can be achieved through:

(a) Direction, involving specialists developing rules, guidelines, directives, policies and operating procedures, plans, schedules, forecasts, standardised

information and communication systems for the non-specialists or specialists of another group/ team in the organisation. (Grant 1996; Van de Ven et al. 1976)

Sequencing, where no direct knowledge transfer takes place and organisational activities are presented in a "time-patterned sequence" (Grant 1996).

(b) Routines, involving establishing patterns of interaction among specialists without the need for extensive communication or exchange of too specialised knowledge. "Relatively complex pattern of behaviour. triggered by a relatively small number of initiating signals or choices and functioning as recognizable unit in a relatively automatic fashion." (Winter 1986)

(c) Group problem solving and decision making that requires communication among organisation members and encompasses the difficulties of communicating tacit knowledge. (Grant 1996)

In Grant and Baden-Fuller (1995), it is argued that the efficiency of knowledge integration depends on the efficiency of the aforementioned mechanisms and the capacity of the organisation to utilise knowledge. "Efficiency of integration mechanisms refers to the ability to access, transfer, and apply the knowledge available within the firm to the transformation of inputs into output." In that case, explicit knowledge has to be presented as "common knowledge" (Demsetz 1991). The types of common knowledge are: language, symbolic communication (e.g., literacy, numeracy), commonality of specialised knowledge, shared meaning (through stories, metaphors, analogies, etc.), and recognition of individual's knowledge domains.

On the other hand, for the communication of tacit knowledge organisational routines have to be in place. Moreover, "the extent of capacity utilisation" of knowledge depends upon matching the firm's knowledge domain to the knowledge requirements for product development (Grant and Baden-Fuller 1995).

Further, the knowledge-based view of the firm sheds light on the role of the organisational structure and the deficiencies of hierarchy in the integration of knowledge. The current trends of organisational design focus on the transfer of tacit knowledge and favour team and cross-functional structures with the direct involvement of individuals as specialists, and team membership depending upon the knowledge requirements of the task at hand. "Integration is best achieved through the direct involvement of individual specialists and official coordinators (managers) cannot effectively coordinate if they cannot access the range of specialist knowledge which the task requires." (Grant 1997) Even in that case, hierarchy is needed for the co-ordination of the sub-teams or sub-systems.

Further, Grant (2001) views modular structures as an efficient response to the problem of knowledge integration. "If the greater part of the knowledge used by firms is tacit, then it can be transferred only at high cost. Modularity is a means of achieving integration across a broad range of different knowledge bases while minimizing the costs of knowledge transfer. The essence of the efficiency benefit of modular structures is that each unit is capable of integrating knowledge among the individuals within the unit, while avoiding the need to continuously transfer knowledge between units. The critical issues for organisational design are then the allocation of the activities of the organisation into separate modules and the definition of interfaces between the modules. The establishment of interfaces is critical. It is the interfaces that provide the basis for knowledge integration between modules.

Finally, the KBV refers to the decision making processes in an organisation and accentuates the importance of "co-locating decision making and knowledge". The decision making process depends on the characteristics of knowledge required for each decision and can be centralized (when explicit knowledge is required) or decentralized (when tacit knowledge is required).

2.2.8 Knowledge Management Related Issues in Healthcare Organisations

Literature in the healthcare area, in general, and the N.H.S. in the U.K. is dominated by discussions around the topics of organisational learning and knowledge transfer.

Especially regarding learning in healthcare organisations, Orzano et al. (2008) argue that so far existing models for learning focus on clinicians as potential learners and ignore the organisation as a whole.

For the N.H.S., in the report "An organisation with a memory" (Department of Health 2000b) the focus of learning is on learning from failures. Namely, activities to support learning from failures should involve not only diagnosing and publishing lessons, but active learning where lessons are put into practice, as well. The factors that affect learning in an N.H.S. organisation, as discussed in the publication are:

- organisational culture that should encourage open reporting and analysis by example. However, "blame cultures" encourage covering errors. The N.H.S. culture is closer to this culture.

- reporting systems that support analysis and recommendations.

Lessons learned mechanisms in the N.H.S. include local, regional, and national incidents reporting systems, systems for complaints and litigation, health and public health statistics, etc.

Further as discussed in sub-section 2.2.5, knowledge transfer is defined as a problematic process summarised in the paradox of medical knowledge, where doctors are overwhelmed with information but cannot find something in particular when and where they actually need it (Nicolini et al. 2008).

In essence, issues that characterise the sharing of knowledge that exists in healthcare organisations are: "fragmentation and distribution of medical knowledge" and "preference for local knowledge in the making of clinical decisions" (Nicolini et al.

2008). Namely, the nature of medical knowledge calls for collaboration between groups of highly specialised professionals and levels in the hierarchy of healthcare organisations.

The N.H.S. claims to encourage an open and participative culture where knowledge sharing could flourish (Department of Health 1999b). However, any initiative by policy makers for open knowledge sharing in the N.H.S. is not easy to realise; N.H.S. is characterised by significant "power differentials" (Currie and Suhomlinova 2006). Similarly, Bate and Robert (2002) discuss the creation of "Breakthrough Collaboratives", i.e., cross functional working teams created to spread "best practices" in the N.H.S., during the implementation of the N.H.S. Plan (Department of Health 2000b; Department of Health 2000a) for a reform in the health service in England and Wales: "The Collaborative method affords ample opportunity for providing evidence, facts, rules, information and data (as explicit knowledge) but relatively little scope for sharing know-how, experience and wisdom (tacit knowledge)." Bate and Robert (2002) pinpoint the importance of a cultural shift in order to stimulate collaboration and integration of knowledge existing within healthcare organisations. They argue that "maintaining motivation and commitment from hard-pressed staff for over a year requires strong local leadership and support..." while "identifying appropriately skilled frontline staff to lead and participate... may hamper progress". They add that knowledge transfer is not straightforward, and it is "naïve to assume that by facilitating meetings between individuals the desired knowledge flows will simply occur".

It is true that the professional boundaries in healthcare organisations are quite strong. Indeed, Currie and Suhomlinova (2006) using a case study to examine knowledge sharing in the (English) N.H.S. argue that professional boundaries limit knowledge sharing in practice. Actually, the knowledge flow between doctors and other professions in the organisation seems to be one way; from doctors to the other professionals (Currie and Suhomlinova 2006; Edwards et al. 2005). Indeed, the other professionals are expected to accept the knowledge of doctors; there is limited space for other professionals to contribute knowledge, even if they want to. The normative rules about the behaviour of a group of professionals in healthcare

organisations, i.e., the expectations of members of a group of professionals regarding other individuals and positions in the organisation, are shaped by their formal education, professional training, and professional networks of socialisation, such as professional associations. For instance, practitioners that belong in the same professional association are expected to share common meaning and knowledge patterns (Meyerson 1994). Therefore, professional associations have more power to promote knowledge sharing. Further, Tagliaventi and Mattarelli (2006) discovered that the closer healthcare professionals work and the more common values they share, the more knowledge circulates. Nicolini et al. (2008) pinpoint the clinical and managerial conflict as each group has different agendas.

"Knowledge sharing within and across organizational and professional boundaries occurs within the institutional frameworks that either directly concern knowledge and collaboration (for example, governmental policies encouraging development of inter-organizational networks, the inclusion of the 'knowledge management' topic into professional development curricula) or indirectly influence those by affecting the overall organizational and professional setting (for example, standard performance indicators and typical career paths)" (Currie and Suhomlinova 2006). However, institutional frameworks might inhibit convergence across different groups and occupations. According to Currie and Suhomlinova (2006) for institutional processes to support collaboration across professional borders in N.H.S. organisations:

- regulatory processes, such as governmental policies have to set criteria for assessment that encourage knowledge sharing, as mentioned above, and

- normative processes must involve common training and education for different occupational groups.

As aforementioned (sub-section 2.2.1), Newell et al. (2003) distinguish between product and process knowledge; where process knowledge refers to the way a "product", e.g., best practice, has been created. In their paper they discuss the development and transfer of best practices in the N.H.S. and argue that it is more

useful to transfer process knowledge. They object to the view of transfer of best practice as a straightforward application of best practices in a new situation. They suggest that "in situations where the practice involves a complex process that is poorly understood by those involved and where the practice is divided up between groups of interdependent professionals..." "emphasis should be placed on disseminating information related to the process of generating knowledge about current practice".

Finally, Nicolini et al. (2008) discuss the enablers of knowledge sharing in healthcare organisations: shared common values and empowering culture, minimization of concerns about power and status differences and encouragement of "speaking up" especially in interdisciplinary teams, close proximity, political commitment and endorsement, informal structures.

2.2.9 Conclusions

The literature on knowledge management is rather rich and covers a variety of aspects that might be useful for the organisational development. Emphasis is given on the typologies of knowledge, the classification of knowledge processes and the categorisation of knowledge characteristics and the factors that influence the effective manipulation of knowledge. Moreover, literature on knowledge processes provides several methods and tools. It is noteworthy that, when authors refer to one knowledge process they automatically involve other processes, stressing the fact that knowledge processes are interconnected and interdependent (e.g., knowledge creation "needs" knowledge transfer and sharing). Among the widely discussed issues in the literature relevant to knowledge management are:

- the importance of individual and group owned knowledge and their interconnection,

- the central role of the social interaction in the knowledge processes,

- the significance of selecting the right channel of communication (e.g., formal, informal, personal, impersonal),

- the value of a shared understanding without compromising the importance of contradictory views over a situation, and

- the balance between preserving specialisation and achieving integration of organisational knowledge.

However, the healthcare sector is characterized by strong professional boundaries, where existing networks of communication are dictated by day-to-day operations and groups of highly specialised professionals do not seem to be easily persuaded or even forced to commit their time and effort in managerial programmes (e.g., like knowledge management initiatives).

2.3 Risk Management

The literature review on risk management discusses views of risk and risk management, and presents existing risk management frameworks that outline risk management processes. Following, this section sheds light on risk management in healthcare organisations, due to the focal point of this study on an organisation member of the N.H.S. Trusts.

2.3.1 Overview

Risk is defined as "the chance of something happening that will have an impact upon objectives" (AS/NZS 4360 1999). Further, risk management is defined as "the culture, processes, and structures that are directed towards the effective management of potential opportunities and adverse effects" (AS/NZS 4360 1999).

In literature, most discussions about risk and risk management on an individual and organisational level examine the concept of risk perception. Slovic (1987) explains that studies on risk perception investigate the judgements people make when characterising and evaluating risks. Contributions on risk perception come from geography, where human behaviour is examined in relation to natural hazards; sociology and anthropology that discuss the social and cultural roots of risk perception in an attempt to adopt a multi-disciplinary approach, including social, cultural, and institutional factors in the process of risk perception (Krimsky and Golding 1992); and psychology that examines the mental strategies or heuristics people employ in order to make sense of uncertainty. More specifically, as will be discussed following, the social scientists focus on the existence of "subjective" and "objective" risk, arguing that whatever definition we might adopt for risk, the assessment of its parameters requires judgement and modelling assumptions. Risk modelling, whether based on quantitative, or qualitative methods of analysis is bounded by ignorance that might arise from our distorted and incomplete knowledge (Smithson 1989).

The two major approaches regarding risk perception are:

- The approach where risk is treated as an objectively defined quality of a situation and individuals make rational choices to minimise risk. Pidgeon et al. (2008) note that in this approach, risk perceptions are examined quantitatively with formal risk analysis. This approach has been criticised as overly cognitive and rationalistic while dealing with human preferences and behaviours (Lowenstein et al. 2001). Further, Slovic (2001) advocates the subjective and assumption-related nature of risk, where it is conceptualised and assessed as a game with rules that are developed based on the context of a specific situation. Adverse events and their consequences cannot be objectively quantified. Instead, individuals use the concept of risk to understand and cope with the uncertainties of life. In other words, there is no "objective risk". Moreover, Douglas and Wildavsky (1982) argue that the way people process probabilities and magnitude of consequences depends on their values, attitudes, social influences, and cultural identity, which leads to the other approach on risk perception, namely the cultural theory.

- The cultural theory defines the social context as the major factor for the understanding of risk related situations (Pidgeon et al. 2008) and accentuates the importance of local and situated social and cultural contexts in which decisions regarding risks are made. Based on the cultural theory human attitudes towards risk and danger are not homogeneous but vary systematically according to the attitudes and beliefs shared by a group, defined as cultural bias. (Douglas and Wildavsky 1982) In essence, what is perceived as risk and how it is perceived depends on the viewpoint from which it is regarded (Douglas and Wildavsky 1982; Rosa 2003). Similarly, Boyd and Jackson (2005) argue that risk is perceived differently by the parts involved; while "labouring under the misapprehension of common dialogue". Thompson and Dean (1996) note that since risk perception depends on the expectations of people and their previous experience, the description of risk depends on its social context. In essence, whoever controls the definition of risk controls the solution to the problem. Thus defining and managing risks can be associated with exercise of power. Douglas and Wildavsky (1982) identify two cultural prototypes: the entrepreneurs, who regard risk as opportunity for development and the egalitarians who perceive risk as threats.

In addition to the cultural theory of risk perception, Henwood et al. (2008) argue that it is the individuals' biographical backgrounds and the contexts of everyday life that influence their subjective "risk positions", i.e., their relationships to sources of risk perception and strategies that may or may not be available to them for coping with risk. Further, the wider socio-cultural context is defined at a macro-level (e.g., institutions) and at a micro-level (e.g., specific situation). At a macro-level, risk is analysed based on its institutional standing, its cultural and organisational pervasiveness and its regulatory power. At a micro-level, risk is analysed based on the practical understanding of the risk-related situation that reflects the individuals' particular motivations and criteria.

Slovic (2001) notes that in the mid-1980s risk communication was introduced to solve existing conflicts and controversial views of risk perception and apparent dissatisfaction with risk management due to a failure to appreciate the complex and socially constructed nature of the concept of risk.

Finally, Kasperson et al. (1988) propose the concept of social amplification of risk, arguing that events pertaining to hazards interact with psychological, social, institutional, and cultural processes so that they shape the attitude towards risk. In turn, the patterns of attitude require additional institutional responses and protective actions. They introduce a model that treats risk as both an objective property of hazard and as a social construct. The experience of risk results to a process by which individuals or groups learn to obtain or develop interpretations of hazards. The risk amplification process starts with a physical event that initiates a selection of (its own) characteristics to interpret it, based on the mental schemes of individuals and the creation of messages to be communicated. Following, these messages are communicated to other individuals and groups, the "amplification stations". The amplification stations respond and if the message is compatible with their beliefs, the message is intensified. In social "stations of amplification" individuals as members of an organisation do not simply follow their personal values but perceive risk related information according to the organisational rules (e.g., professional standards in scientific communities).

Much later, Kasperson et al. (2003) still discuss the issue of risk perception focusing on how the risk experience is evaluated. They argue that the experience of risk is influenced by the processes used by people to learn how to interpret it. Risk interpretation consists of rules guiding the selection, ordering and explanation of signals related to the risk. Risk experience is evaluated based on the interaction between the event and relevant harm and the social and cultural context that influences its interpretation. Further, Pidgeon (1998) insists that incomplete knowledge or ignorance creates uncertainty in an ill-structured and complex situation.

Besides the conflicting views of risk perception, literature on risk management offers a variety of methodologies dealing either with risk management in general, or particularly with risk management in project management. The majority of these methodologies are process-oriented and describe the phases or stages of risk management in an organisation or a project. The way risk is perceived defines the result of these processes. Following, risk management processes outlined by risk management methodologies are presented (see also Table 2-3).

The Australian standard (AS/NZS 4360 1999) that is, in principle, adopted by the organisation under study and all N.H.S. Trusts, recognises risk management as an integral part of good management practice, related to any activity, function or process of the organisation, and proposes a generic approach to the implementation of risk management with the following steps that need to be applied at every and any organisational level:

- Establish the context of risk management, in the following terms: financial, operational, competitive, political, social, customer-related, cultural, and legal and develop the risk management strategy.

- Identify risks.

- Assess risks, consisting of: (a) risk analysis, by studying the likelihood and consequences based on the following information: available records, results of

inspections, statistical data, relevant experience, specialist judgment, experiments; (b) risk evaluation, based on risk analysis, to create priorities to support any decisions about their treatment.

- Treat risks. The choices for risk treatment are: avoid risk, transfer risk, mitigate risk, or accept risk.

- Monitor and review risk management.

- Communicate and consult risk management based on a risk-aware culture.

This standard for risk management emphasises planning and communicating the risk management process. Planning is considered a vital component of risk management. Based on this standard, the critical success factors for the implementation of risk management initiatives are:

- Development of awareness of the importance and principles of risk management throughout the organisation.

- Development of a clear statement of risk management policy, where people responsible and accountable for managing risk are defined and the process of reporting is clearly outlined.

- Development of a risk management implementation plan.

- Training and education.

- Development of a process for continuous monitoring and review of the risk management practices in the organisation.

- Development of a process of communication and consultation that occurs throughout the risk management cycle.

Especially, regarding communication and consultation of risk management, the Australian standard (AS/NZS 4360 1999) recommends the development of a Communication Strategy for risk management to set the aims and objectives and define the target audiences, and key messages in the course of risk management.

Another framework of risk management processes comes from the Ministry of Defence (1991) and includes: risk management initiation, risk identification, risk analysis, risk management planning and management.

On the other hand, Chapman and Ward (1997) and Ward and Chapman (2003) argue that existing literature on risk management, and especially on project risk management, has failed to incorporate the issues of opportunities and uncertainty; rather risk management is orientated towards threats. Therefore, they suggest that the term "uncertainty management" might provide a more balanced view. However, uncertainty management is more than risk management; it refers to the identification and management of all the sources of uncertainty which give rise to and shape our perceptions of threats and opportunities (Ward and Chapman 2003). Similarly, Hillson (2002) proposes a common framework of risk management processes to manage both threats and opportunities. More specifically, he proposes additions in the implementation of the risk management processes in the Guide to the Project Management Body of Knowledge (PMBoK) (Project Management Institute 2000). The risk management processes are risk management planning, risk identification, qualitative and quantitative risk analysis, risk response planning, and risk monitoring and control and the additions to incorporate opportunity management are:

- In risk identification, the introduction of supplementary techniques, such as SWOT (Strengths Weaknesses Opportunities Threats) analysis of the situation.

- In risk response, planning the supplementary options for opportunities: exploit, share, enhance, or ignore.

Finally, the project management methodology PRINCE2 (TSO (The Stationery Office) 2009) outlines the following risk management procedures: identify (context and risk), assess risk (estimate and evaluate), plan (prepare response), implement (ensure that response is in action and monitored), and communicate.

AS/NZS 4360 (1999)					
Establish the context of risk management	Identify risks	Assess risks	Treat risks	Monitor and review risk management	Communicate and consult risk management
Ministry of Defence (1991)					
Risk initiation	Risk identification	Risk analysis	Risk management planning and management		
Guide to the Project Management Body of Knowledge (PMBoK) (Project Management Institute 2000)					
Risk management planning	Risk identification	Qualitative and quantitative risk analysis	Risk response planning		
			Risk monitoring and control		
PRINCE2 (TSO (The Stationery Office) 2009)					
Identify context	Identify risk	Assess risk	Plan		Communicate
			Implement		
Liley and Lambden (1999) – clinical risk management (described in 2.3.2)					
	Identify key risks	Analyse risks	Control risks and look at the cost of risk treatment		

Table 2-3. Risk Management Processes outlined in Risk Management Methodologies

An integral element of good risk management practice and a key feature of the AS/NZS standard (AS/NZS 4360 1999) is the risk register (Controls Assurance Support Unit 2002). The Department of Health has funded the Controls Assurance Unit of Keele University to prepare a guide for risk managers regarding risk registers (Controls Assurance Support Unit 2002). In this guide the risk register is defined as "a log of risks of all kinds that threaten an organisation's success in achieving its declared aims and objectives." The proposed contents of a risk register in the Guide

of the Controls Assurance Unit (Controls Assurance Support Unit 2002) are: objectives of the organisation, description of risk, risk title, risk ranking, lead person and/ or department dealing with risk, action and treatment plans, important dates, existing controls, location, cost/benefit analysis, acceptance/ completion, comments.

The risk registers are created and managed through the risk management processes presented above (summarised in Table 2-3). In essence, it is created through the risk identification process and populated through the risk assessment process in order to decide how a risk will be treated. Further, the risk register is updated in the risk review.

Risk registers are widely used by the government and the public sector in the U.K. In a report regarding improvement in risk handling in the U.K. government (HM Treasury 2003) it is stated that the awareness of the importance of good risk management has increased in the U.K. public sector and government. The management boards in departments of the government (Home Office, HM Treasury, Department of International Development, Department of Work and Pensions etc.) regularly review existing risk registers in order to manage top risks to key objectives and targets. As a matter of fact, the Cabinet Office has published the "National Risk Register" for the U.K. (Cabinet Office 2008) to include the most significant emergencies for the U.K. and its citizens for the next five years.

As mentioned above, risk management is also crucial for project management. Accordingly, the Guide to the Project Management Body of Knowledge (PMBoK) (Project Management Institute 2000) and PRINCE2 project management methodology (TSO (The Stationery Office) 2009) recommend the development of risk registers. For project management, the contents of a risk register include information regarding, who raised the risk; when was the risk raised; the category of risk; the description of risk; impact and expected value; proximity; risk response; risk status; risk owner; risk actionee (TSO (The Stationery Office) 2009).

2.3.2 Challenges for Healthcare Organisations

In general, with respect to risk management in the healthcare sector, the majority of literature refers to medical care quality management and clinical risk management.

On medical care quality management, Donabedian (1980) argues that in order to evaluate quality in medical care, one should distinguish between the "technical and interpersonal modules". Quality in the technical module refers to the application of medical science and technology so as to maximise its benefits to health without correspondingly increasing risks. On the other hand, quality in the interpersonal module, relates to the achievement of socially defined values and norms that govern the interaction of individuals.

Further, literature of clinical risk defines the stages of risk management and accentuates the importance of clinical risk communication. Based on Marquand and Miller (1997) there are two components of clinical risk: uncertainty, doubt, or chance, and the outcome or loss. Increase of knowledge on the processes that lead to an adverse outcome can lead to a decrease in the risk of that outcome. In addition, Liley and Lambden (1999) distinguish four stages in clinical risk management:

- Identify key risks and encourage staff involvement.
- Analyse risks, in terms of frequency, impact, significance, and any observed patterns of occurrence.
- Control risks, investigate alternative reactions, and plan action.
- Look at the cost of risk treatment.

For the National Health Service (N.H.S.) in the U.K., risk management is a major concern, as revealed by the priorities for health improvement, in the modernized N.H.S. (Department of Health 1998), where it is stated that:

- Clinical risk management should focus on the identification and prioritisation of those at most risk of adverse effects.

- Organisational risk management should ensure that the systems and procedures necessary to achieve excellent clinical management are continuously in place.

Risk management in the N.H.S. Trusts is under the "umbrella" of clinical governance (Department of Health 1998). In Liley et al. (1999) clinical governance is defined as "doing anything and everything required to maximise quality" in the health care organisations. Chambers and Wall (2000) characterize clinical governance as "search for ways to implement care that works in an environment in which clinical effectiveness can flourish by establishing a facilitatory culture". Scally and Donaldson (1998) define clinical governance as "a system through which N.H.S. organisations are accountable for continuously improving the quality of their services and safeguarding high standards of care by creating an environment in which excellence in clinical care will flourish." Further, Scally and Donaldson (1998) stress the fact that in the past the majority of meetings and reports in the N.H.S. covered only financial issues that set the targets for the future. For the first time, the government's white paper (DoH 1997) describing the aspirations for the "new N.H.S." stated "the statutory duty of health professionals to seek quality improvement through clinical governance".

As already mentioned (sub-section 2.3.1), the Controls Assurance Support Unit has created a guide for risk management (2002), on behalf of the Department of Health, that identifies the essential requirements for risk management:

- The policies of risk management and benefits from implementing them should be communicated to all staff in the organisation.

- Senior management must own, lead and support risk management.

- The organisation's culture should support risk taking and innovation.

- Risk management should be embedded in the management processes of the organisation.

- Risk management should be linked with achievement of objectives.

- Risks linked with work with other organisations should also be assessed and treated.

Further, in this publication, it is advised that information that can be used for reactive risk management can be found in claims, incidents and audit reports, while information that can be used for proactive risk management can be found in patient surveys.

As already mentioned (sub-section 2.2.8), one issue discussed widely in relation to risk management in the N.H.S. and healthcare organisations is the analysis of adverse incidents, mainly concerning clinical incidents, to enhance learning from mistakes and promote proactive risk management. There are no theoretical foundations in the healthcare literature covering management of incidents or prevention strategies (Vincent et al. 2000). The Clinical Risk Unit (Department of Psychology, University College London) with members of the Association of Litigation and Risk Management (ALARM) has formed a collaborative research group that has developed a protocol for the investigation and analysis of serious incidents. The steps of the protocol are:

1. Identify the care management problems as actions or omissions by staff when providing care. For each care problem a record of the clinical context and patient status should be created.

2. Consider the conditions under which errors occur and the wider organisational context that might affect errors.

3. Distinguish between recurring problems and those that have not occurred before.

4. Create recommendations to prevent recurrence.

5. Implement actions and monitor their progress.

In relation to the analysis of adverse incidents, as aforementioned (sub-section 2.2.8) the existence of a "no blame culture" is an issue highlighted in publications regarding governance and risk management in the N.H.S. (Department of Health 2000b). On this subject, when an adverse event happens there is usually an attempt to identify the individual(s) to be blamed for. It is argued that it is right that sometimes individuals must be held accountable for their actions, in particular in cases of "gross negligence or recklessness, or of criminal behaviour". However, in the majority of cases it is not only the actions of individuals that cause serious failures. In a complex field like a healthcare organisation, factors that lead to a failure are a combination of:

- Active failures, usually short-lived and unpredictable and
- Latent conditions that develop over time are long-lived and can be treated proactively.

Further, Hackett et al. (1999) discuss the obstacles when implementing a clinical governance programme, in healthcare organisations, which are cultural and behavioural. Namely, the cultural barriers are:

- Concern over the limited time of people to invest in clinical governance systems.
- Concern that clinical governance systems with structured guidelines and protocols will restrain clinical judgement.
- Concern that clinical governance is another management agenda aiming to control costs.
- Concern that clinical governance systems might stop progress and innovation.

- Existing tension between the self-regulating culture of health professionals and especially doctors and the structured, controlled, focused on accountability management culture.

- Fear of publicity of errors that might have adverse effects on the reputation of health professionals.

In addition, the behavioural barriers are:

- Reluctance to change because of the numerous changes in the N.H.S. over the past decades.

- Lack of evidence-based guidelines and time.

- Negative perception over systems imposed by management.

- Lack of relevant specialties and resources in general.

- Fear of losing power and status.

Finally, Hackett et al. (1999) define the features that affect the successful development and execution of a clinical governance framework: culture, leadership, and established networks of power. They believe that in order for clinical governance to succeed, chief executives, boards, and directors have to work through the existing culture, rather than trying to change it. "In working with existing culture, the emphasis in establishing clinical governance systems should be: to focus on changing practical issues, the artefacts which are easiest changed; and to concentrate on the three outside forces [societal expectation, consumer expectation, competitive environment] during the process to change culture as a by-product of the change management process to change the practice in the organisation." The focus should be on achieving coordination of groups to create a shared vision, commitment of the health professionals through involvement and ownership, and competences through training.

The leadership must be inspirational, aiming to engage everyone in clinical governance. Leadership is crucial when: defining the vision and the values of clinical governance, communicating the vision and values, encouraging participation in multidisciplinary teams, developing the mechanisms of communication. Irvine (1997) argues that good medical practice is linked to the development and establishment of strong clinical teams. "If the chief executive fails to recognise this and does not set up the organisational infrastructure focused on clinical teams and their development, and encourage their participation in directing and leading clinical governance, then this will result in its failure."

Moreover, existing networks of power must be used to support clinical governance, while efforts to prevent negative exercise of power -for the implementation of a clinical governance initiative- are essential. It is important for chief executives, boards, and directors to understand which networks will and which will not support a clinical governance initiative, bearing in mind that the most powerful stakeholder is the consultant.

2.3.3 Conclusions

From the issues presented above, it is evident that risk management involves a multi-dimensional decision-making and communication process, where the quality and type of knowledge have a significant role. The risk management processes presented above can be summarised as: risk identification, risk analysis, risk treatment, and risk review. Further, the Australian standard (AS/NZS 4360 1999) and the project risk management methodologies emphasize the importance of planning and monitoring. Risk perception, whether objectively or socio-culturally defined shapes the outcome of the risk management processes.

Especially in the healthcare sector, risk management initiatives are usually related to clinical governance. Existing cultural and behavioural barriers to the successful implementation of risk management programmes, such as limited time and resources, fear of losing control, and power or endangering the organisation's reputation, resistance to adopting (another) management agenda, could be

overcome through a motivating and inspiring leadership, use of existing networks of power, working within the context of existing cultures to create a shared vision.

2.4 Literature Review Conclusions

Existing literature presents a variety of views on organisational knowledge, organisational processes and knowledge management in general. Further, literature on risk management is based on existing standards and provides general views on the factors that influence decision making in risk management. However, there is no specific reference on the link between knowledge management with risk management in an organisation in general, or in healthcare management, in particular.

Literature on knowledge management highlights the importance of knowledge in the decision-making process, presents several categories of knowledge and approaches of its manipulation in the organisational context. Existing literature refers to the organisation as a whole, and fails to incorporate the idiosyncrasies of specific operations, as risk management.

In addition, enterprise-wide risk management involves a complex decision-making process. The risk management literature presented above reveals a significant attempt to organise and integrate the processes and factors that influence risk management. However, even though knowledge is a fundamental resource in the course of risk management, management of knowledge is not explored.

Concluding, the challenges deriving from the literature review presented above are:

Distinguish between tacit and explicit knowledge.

Define the valuable knowledge and the stakeholders of risk management.

Explore the relationship between theories espoused in the knowledge management and risk management areas.

Describe the idiosyncrasies of the healthcare sector and the organisation under study that affect the support of risk management operations by knowledge management.

The following chapter describes the methodological approach of this research and presents the research design.

CHAPTER 3. METHODOLOGY

3.1 Introduction

This study investigates a knowledge-related perspective of organisational risk management and proposes a framework for the improved implementation of risk management processes, outlined in a N.H.S. Trust's risk management policy and procedures, through the management of risk-related knowledge. As indicated in the previous chapter, knowledge is a vital resource for organisational risk management. However, existing literature does not provide significant, if any at all, evidence towards knowledge management for risk management.

The research is based on a single case study. The organisation under investigation is an N.H.S. (Foundation) Trust that has risk management policies and procedures in place. Risk management is carried out through four main processes in this organisation: risk identification, assessment, treatment and review. The risk register is the main tool to document and manage risks. More specifically, the current research focuses on:

- Investigation of the Trust's risk management processes in relation to the risk registers:
    - How are risk management processes, outlined in the Trust's risk management policy and procedures, carried out;
    - how are risk registers developed and maintained in the course of risk management;
    - what are the issues in the management of the risk registers.
- Investigation of the Trust's risk management processes in relation to information and knowledge for the risk registers:

- What are the information requirements for each risk management process;
- what are the knowledge requirements for each risk management process;
- what is the status of existing knowledge;
- what are the issues regarding knowledge.

- Investigation of the Trust's risk management processes for the risk registers in relation to the stakeholders:
  - Who gets involved in the creation and management of the risk registers;
  - what are the existing relationships among stakeholders in the management of the risk registers;
  - what are the issues regarding the stakeholders and their relationships.

- Investigation of how risk management processes for the risk registers can be facilitated by using tools or techniques from the area of knowledge management for the required (identified through the research) knowledge.

This chapter describes the methodological approach that guides the research. First, the dominant paradigms in social science are presented, namely positivism; hermeneutics and interpretivism; emancipatory approaches and critical theory; and postmodernism with reference to their influence on the current study. Second, the methodological context of the research is outlined; the concepts of case study research and Soft Systems Methodology are discussed and associated with the study. Following, the research design is presented, outlining the research procedures and the case study protocol. Finally, the criteria for quality of the current study are discussed.

3.2 Social Theories

The choice of the sociological paradigm in management research defines the relationship between theory and data and clarifies the configuration of research in terms of the kind of data to be collected and how data will be interpreted. Paradigm is defined by Kuhn (1970) as "universally recognised scientific achievements that for a time provide model problems and solutions to a community of practitioners".

Burrell and Morgan (1979) present the following assumptions about the nature of social science:

- *Ontological* assumptions regarding the very essence of the phenomena under study, raising the debate between nominalism and realism. Based on nominalism, the social world is made up of names, concepts and labels used to structure reality. Realism views the social world as made up of unchangeable structures while it exists independently of the individual's appreciation of it.

- *Epistemological* assumptions about how one might begin to understand the world and communicate this as knowledge, raising the debate between positivism and anti-positivism. Positivism postulates that the social world exists externally, and its properties should be measured through objective methods, such as search for regularities and causal relationships. Anti-positivism views reality as socially constructed; thus the researcher should focus on the "different constructions and meanings that people place upon their experience" (Easterby-Smith et al. 1991).

- *Human nature* assumptions regarding human beings and their relationship with the environment, raising the debate between determinism and voluntarism. Determinism views human beings and their activities as dependent on their environment, while voluntarism views human beings as autonomous and free-willed.

- *Methodological* assumptions regarding ways to investigate phenomena, raising the debate between ideographic and nomothetic theories. Nomothetic theories give

emphasis to deduction while research is based on systematic protocols and techniques. Ideographic theories focus on first-hand knowledge of the subject under study, theory developed on empirical observations based on interpretation and understanding of meanings.

Further, Burrell and Morgan (1979) introduce four basic paradigms that can be used for the analysis of a wide range of social theories (Figure 3-1), based on two dimensions: the nature of social science, as objective or subjective and the nature of society, namely towards regulation or radical change. Each paradigm has a set of assumptions and refers to a different viewpoint of the social world.

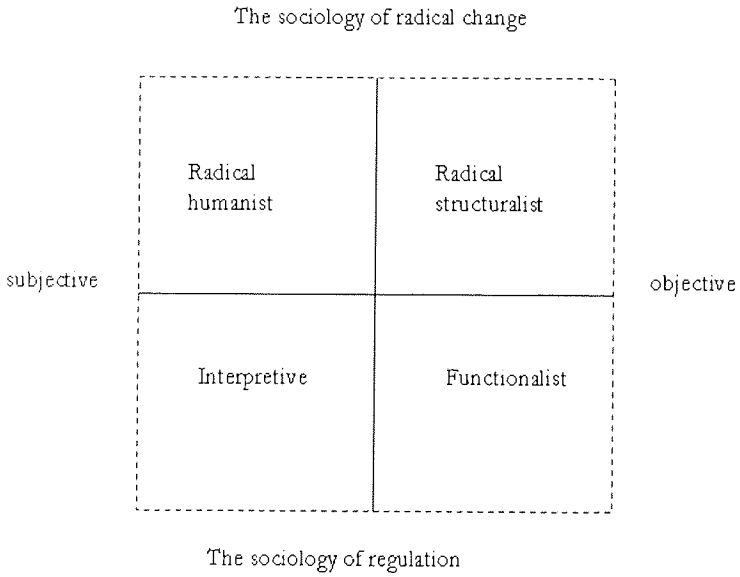


Figure 3-1. Four paradigms for the analysis of social theory (Burrell and Morgan 1979)

The *functionalist* paradigm approaches the subject of study from an objectivist viewpoint and is rooted in the sociology of regulation. The approach is ontologically, realist, epistemologically positivist, from a human nature point of view determinist, and methodologically nomothetic seeking to provide rational explanations and usually, solutions to problems. It emphasises in establishing order, equilibrium and stability and is concerned with regulation and control of social affairs. The paradigm is rooted in sociological positivism based on the work of Saint-Simon (1760-7825), Comte (1798-1857), Spencer (1820-1903), Durkheim

(1858-1917), and Pareto (1848-1923), in the nineteenth century. Based on it, "the social world is composed of relatively concrete empirical artefacts and relationships which can be identified, studied and measured through approaches derived from the natural sciences" (Burrell and Morgan 1979). As presented in Delanty (1997), criticism of the positivist approach comes from Popper (1902-1994) who argues that its empiricist form cannot explain the principled rejection of evidence. Popper introduced the concept of falsification, also called hypothetico-deductive method, referring to deductive approach of science with attempts to falsify the results of previous theories (Popper 1959). Another stream of criticism comes from Kuhn (1922-1996) who argued that science progresses through attempts to resolve problems that cause revolutionary breaks in paradigms. Further, the major opposition to positivism came from hermeneutics and the interpretive approach, as well as from the emancipatory approach and critical theory, as presented in the following paragraphs of this chapter.

The *interpretive* paradigm is rooted in the sociology of regulation with a subjectivist approach to the analysis of social world, trying to understand the world as it is. The approach is ontologically nominalist, viewing the world as questionable and problematic; epistemologically anti-positivist; from a human nature viewpoint voluntarist; and methodologically ideographic. The assumption regarding the nature of society is that human affairs are ordered and integrated.

The paradigm is rooted in hermeneutics originated by Vico and Rousseau, the neo-Kantian school, phenomenology evolving into the interpretive school of Weber, and Freud's psychotherapy, in the nineteenth century. Hermeneutics provided a rather conservative and uncritical attitude towards society, standing for interpretation without criticising the subject. In this approach, "the interpreter in trying to understand another culture or social actor is also consciously or unconsciously drawing upon a background of prejudices that shapes the act of interpretation, bringing into question the neutrality that hermeneutics attribute to it" (Delanty 1997). The two strands of hermeneutics come from (a) neo-Kantianism, Weber, and Freud and (b) the philosophy of language. Namely, the first school of thought is characterised by objectivism, where human meaning can aim to

objectivity. In the stream of neo-Kantians Dilthey (1833-1911) opposes to positivism and causal explanations of the structure of mental life. Following, Weber (1864-1920) believes that social sciences must entail both explanation and understanding (interpretive sociology). The second school of thought, the linguistic tradition (Heidegger (1889-1976), Wittgenstein (1889-1951), Gadamer (1900-2002), Winch (1926-1997)) is characterised by subjectivism. Starting from interpretation of texts and evolving into interpretation of culture this tradition focuses on understanding of the intentions of human beings, reaching for hidden meanings.

The *radical humanist* paradigm advocates the sociology of radical change from a subjectivist perspective. The approach ontologically is nominalist; epistemologically is anti-positivist; from a human nature perspective is voluntarist, where the "consciousness of man is dominated by the ideological superstructures with which he interacts" (Burrell and Morgan 1979); and methodologically is ideographic. The major concern is release from the constraints imposed by society upon human development. The tradition is influenced by idealism from the work of Kant (1724-1804), Hegel (1770-1831), and (young) Marx (1818-1883).

The *radical structuralist* paradigm is concerned with the development of sociology of radical change from an objectivist perspective. The approach is ontologically realist, epistemologically positivist, from a human nature standpoint determinist, and methodologically nomothetic. The approach focus on "structural relationships within a realist social world" (Burrell and Morgan 1979), in the sense that radical change is based on the structures of contemporary society expressed as economic and political crises. The tradition is influenced by the work of Marx (1818-1883).

Relative to the radical paradigms of Burrell and Morgan (1979), namely radical humanist and radical structuralist and critical of functionalism and positivism and even to hermeneutics, comes the *emancipatory approach* and *critical theory*. The traditional approaches of positivism and anti-positivism or hermeneutics are challenged by Marxist social science (originating from Kant (1724-1804) and Hegel (1770-1831)), which are dominated by criticism of the prevailing order of society, ideas for emancipation related to social change, dialectical relationship between

science and subject, and belief in economic force as the prevailing in history (Delanty 1997). The key idea underlying Marx's approach is the "movement from contradiction through crisis and conflict to social change" (Delanty 1997). Compared to hermeneutics, the aim of this approach is less interpretative and more explanatory aiming to the transformation of social structures. One of the debates raised from Marx's work is related to the role of culture and is originated by the Frankfurt School and Marcuse (1898-1979), known as critical theory.

The Frankfurt School, with principal theorists Adorno (1903-1969) and Horkheimer (1895-1973), stresses the importance of ideology and the dialectical method aiming to identify contradictions in society. Following the Frankfurt School, Habermas (1929-) and Apel (1922-) reintroduce critical theory, criticising positivism, hermeneutics, and critical theory of the Frankfurt School and trying to resolve the three traditions under one unified vision creating the reconstructive critical hermeneutics. Especially, Habermas moves from critique of ideology to a critique of distorted communication; science has to investigate how the potential for social change can be reconstructed out of existing forms of communication. The approach of reconstructive critical hermeneutics is an attempt to synthesise approaches of the (Marxist) critical theory and hermeneutics.

Another approach emerging in the late 1960s is postmodernism drawing attention to cultural innovation, viewing culture as an open system of linguistic codes. Its key ideas are: society can be interpreted as a text, the deconstruction of agency requires shift of emphasis from structure to culture, and the approach involves cultural plurality, heterogeneity, ambiguity, ambivalence, with no single correct point (Delanty 1997). The most influential work is that of Lyotard (1924-1998) and Jameson (1934-). The approach defines society as postmodern and knowledge-based. Lyotard views the postmodern society as a globalising culture of experts and consumerism. For Jameson postmodernism is the cultural logic of capitalism in a multinational dimension. In general, postmodern society increases the options to individuals. Unlike Habermas, postmodernism emphasises plurality of communication and difference rather than consensus. Delanty (1997) argues that

postmodernism embraces vague concepts, fails to explore the interrelations of agency, culture, and structure, neglects issues of power and domination.

In the current study, the researcher has adopted the interpretivist approach, as more relevant to the subject. The interpretivist approach was indicated by (a) the absence of a theoretical framework concerning knowledge management for risk management and (b) the opportunity of close observation in a healthcare organisation, as the most appropriate for this research. Practically, this tradition based on inductive methods gives emphasis on theory developed based on the subject's meanings of phenomena. Moreover, theories are developed based on the subject's phenomenological worlds; the researcher has to contribute his/her external logic that exists independently and explains the subject's internal logic (Gill and Johnson 1997).

Criticism of the inductive approach argues that attempts to generalise are weak, due to small samples used. However, generalisation is not a key objective of this study; rather the researcher aims to investigate the specific case in depth.

3.3 Methodological Approach

The research is based on a single case study. The organisation under investigation is an N.H.S. (Foundation) Trust. As described in 1.2.4, members of the upper-level management of the hospital have expressed a general interest on the efficient and effective management of knowledge created in or acquired by the hospital. Aiming to the identification of specific business areas where knowledge management has allegedly a significant impact, a number of discussions took place between the researcher and the organisation. One of the identified areas was risk management.

Moreover, concepts of "soft systems methodology" as presented in Checkland (1981) and Checkland and Scholes (1999) are used to capture the perceptions of risk management. Based on this, the participants in the system (i.e., in the cycle of risk registers) present their views to shed light on the real situation regarding the risk registers.

The following paragraphs present the basic concepts of case study research and Soft Systems Methodology and connect them with the current study.

3.3.1 Case Study

Case studies are the preferred research strategy when "how" and "why" questions are being posed, the investigator has little control over events, and the focus is on a phenomenon within real-life context (Yin 2003). The need for case studies derives from the need to interpret complex social phenomena. As Stake (1995) argues, "case study is not a methodological choice but a choice of what is to be studied."

Yin (2003) distinguishes between three types of case studies: exploratory, where a case study is used to formulate questions or hypotheses; descriptive, where the description of an observed situation is the focal point; and explanatory, where the researcher tries to answer "how" and "why" questions. This research aims to shed light on questions like how is risk management carried out and how are risk registers developed and managed in the organisation under study; how are risk and risk management related information and knowledge communicated in the course of risk management; why are there (if any) inefficiencies in the deployment of risk management related information and knowledge in the organisation; why are there (if any) inefficiencies in the way risk and risk management related knowledge is communicated etc. Consequently, this case is explanatory.

Stake (1995) identifies three heuristic types of case studies: intrinsic, where the researcher aims to a better understanding of the case per se; instrumental, where the researcher is interested on a specific issue and uses the case study to observe this issue; and collective, as instrumental extended to several case studies. The current case is used to observe risk management and especially the management of the risk registers in a healthcare organisation and is therefore instrumental.

Gummesson (2000) presents as the major advantage of case study research the potential to provide a holistic view of a process or issue, as a result of detailed observations of different aspects of a situation. Eisenhardt (1989) adds as one of the

strengths of building theory from case studies, the "likelihood of generating novel theory", through the challenge of reframing existing situations. Further, she argues that new theory resulting from case study analysis "is likely to be empirically valid", as theory building is tied with evidence. Gill and Johnson (1997) argue that case study research is appropriate when little is covered in the literature about a topic, or to provide a different perspective in a well researched area. In the case of this research, as already discussed in the literature review (Chapter 2), the issue of knowledge management for risk management is not covered.

On the other hand, case studies have received strong criticism, mainly accused of lack of rigor, lack of statistical reliability and validity, providing little base for generalisation, and taking too long and producing a large volume of documentation that will make it difficult for the researcher to distinguish the most significant concepts. Eisenhardt (1989) adds to the list of possible weaknesses of case study research, the fact that theory built through a case study might be too complex due to the richness of data, or too idiosyncratic.

However, case studies can be guided by systematic procedures; their reliability and validity are evaluated based on different than statistical criteria; they are "generalisable to theoretical propositions and not to populations" (Yin 2003), that is case studies have "analytic generalisation" (Yin 2003); and, finally, it is not necessary for case studies to be written as long narratives. Stake (1995) stresses the importance of data triangulation as a process of using multiple sources of data and multiple perceptions to verify "the repeatability of an observation".

Eisenhardt (1989) outlines the critical points for theory building through case studies. First, the definition of the research question (even in broad terms) is important to decrease the volume of worthless data. On defining the research question, Mintzberg (1979) stated: "No matter how small our sample or what our interest, we have always tried to go into organisations with a well-defined focus – to collect specific kinds of data systematically." Second, the selection of the case study is crucial, as random selection of a case study is "neither necessary, nor even preferable." (Eisenhardt 1989) Third, development of instruments for measurement

and protocols plays an important role; in this case data triangulation is essential. Fourth, the researcher enters the field of study and data collection might overlap with data analysis. It is useful for the researcher to have field notes, where everything that happens during the study is recorded. The fifth step is data analysis, where the researcher has to avoid being overwhelmed by the volume of data while trying to define emerging patterns. In data analysis, existing literature is important, providing either conflicting or similar views. Last, the researcher has to draw conclusions, when the iteration between theory and data stops.

This case study follows a precise research design, i.e., a logical plan that guides the research, ultimately, aiming to link collected data with the initial objective of the study. The research design is described in detail in following section (3.4) of this chapter.

3.3.2 Soft Systems Methodology

From a social science standpoint, interpretive sociology, discussed earlier in this chapter (section 3.2), provided the theoretical framework for Soft Systems Methodology. From an interpretive viewpoint, Dilthey (1833-1911) argued that human actions have to be understood based on human beings' intentions, through the method of *verstehen*, as a procedure to give "meaningfully adequate" interpretations of the social action.

In the late 1940s, Ludwig von Bertalanffy brought concepts derived from biology into one framework and generated the "general systems theory". According to von Bertalanffy (1968; 1950) every living system is a "whole" consisting of interrelated and interdependent parts that interact to maintain the whole. Parts are hierarchically ordered and each performs special functions for the survival of the whole and its adaptation to the environment. The whole takes inputs, transforms them and produces outputs into the environment. The key concept is the "open system". The work of Von Bertalanffy established the discipline "General Systems Theory" (GST). Criticism of GST is that it uses mathematical analogies that lack empirical substance.

Further, Wiener (1950) applied the concepts of cybernetics, as the science of control and communication in animals and machines to human situations. The basic concepts of cybernetics are control and communication. Regarding control, human behaviour is guided by information about divergence from a preset goal; such information dictates corrective action to put behaviour back in the desired direction. Communication is essential for control over actions and behaviours.

In addition, in the 1960s, Simon focused on administrative behaviour and executive decision making, in the sense that managerial decision making is boundedly rational and takes place in cases of unacceptable outcomes based on preset goals (e.g., low performance).

The aforementioned work has influenced the emergence of systems thinking. Checkland (1981) distinguished between the application of systems thinking in other disciplines and the study of systems per se. Studying the systems can be, further, divided into the theoretical development of systems thinking and the problem-solving application of systems thinking in real life situations. Checkland subdivided the latter into hard systems thinking, systems ideas to support decision making, and soft systems thinking.

Vickers (1965) rejected the goal-seeking approach of human activity by Simon, as well as the concepts of controlling a system from outside as postulated by cybernetics and argued in the "appreciative systems theory" that individually or in groups we selectively perceive our world, judge it, and envisage acceptable forms of relationships that we balance based on our judgement. The major themes of Vickers' theory, as presented in Checkland and Casar (1986), are: a rich concept of day-to-day experiences; categorisation of judgements into reality, what is the case, and value; what is humanly good or bad; relationship maintaining as central in human action; action judgements based on reality and value judgements; belief on a cycle of judgements and actions organised as a system.

Hard systems thinking, influenced by the work of Simon, views systems as "not problematical, that the system's objectives can be defined, and that alternative

means of achieving them can be modelled and compared using some declared criteria, enabling a suitable selection to be made of the most desirable form of the system" (Checkland and Scholes 1999). On the other hand, soft systems thinking, influenced by Vickers, focused on learning the meanings by which, people sharing a common situation, seek to make sense of it. The difference between hard and soft systems thinking is that the former views the world as systems that can be systemically engineered towards objectives. On the other hand, soft systems thinking assumes the world to be problematic and introduces a process of inquiry of the problematic situation.

Soft Systems Methodology (S.S.M.) has emerged as an inquiring and learning process regarding situations which "some people, for various reasons, may regard as problematical." (Checkland and Scholes 1999) As Wilson (2001), practically, notes "S.S.M. has to start by defining, not a problem but a situation that is problematic". In short, the principles of S.S.M. are (Checkland and Scholes 1999):

- Real world is characterised by complex relationships. Every situation under study is a "human situation in which people were attempting to take purposeful action which has meaning for them."

- Relationships are explored through models of purposeful activity reflecting various perceptions of people involved in the situation under study.

- Given the complexity of human related situations a choice regarding the human activity system models that could be built is based on the degree of relevance with the situation under study and a given Weltanschauung. Weltanschauung is the perspective or worldview based on which a human related situation is perceived as meaningful. Individuals perceive a human situation differently depending on their background, personal interest, position in an organisation, etc.

- The problem-solving process consists of a learning cycle where models of human activity systems support a debate about change. Proposed "action to improve" a situation considered problematic takes into account conflicting interests.

The main parts of S.S.M. are (Figure 3-2):

Figure 3-2: The conventional seven-stage model of S.S.M. ((Checkland and Scholes 1999)

Finding out about a problem situation. Through data collection the researcher tries to create an image of the situation that is considered to be problematic, thus the "starting point" in Figure 3-2, *problem situation considered problematic*. This image of the situation aims to reveal the actors of the situation, existing relationships, meanings given to the situation, perceptions on the performance of existing roles and responsibilities, and thoughts on the way power is distributed, expressed, and used in the situation (in Figure 3-2, *problem situation expressed*). Influenced by this terminology, the researcher uses the data collected to develop *the cultural stream of analysis (Analyses One, Two, and Three)* to create a detailed view of the intervention, and the cultural and political context of it. More specifically, *Analysis One* outlines the intervention structurally and, generally, lists three possible roles: "client", as the person who initiated the study; "would-be problem solver(s)", as whoever wishes to do something about the problematic situation; and "problems owner(s)", defined by the problem solver(s). *Analysis One* guides the choice of relevant systems, in the

subsequent phase of the research. *Analysis Two* refers to the social characteristics of the system under study, the hierarchies, the roles, the norms (perceptions on how roles should be performed), and the values (perceptions on how roles are, actually, performed) of the situation under study. Furthermore, *Analysis Three* focuses on the distribution of power, its source and justification among the people who participate in the specific human activity under study. *Analysis Three* reflects what is essential for possession of power in the context of the situation considered problematic.

In addition, the cultural analysis of the problematic situation entails the creation of the "rich picture", as "a sketch or diagram ... that depicts certain important aspects of the situation." (Patching 1990). A *rich picture* might show elements of the structure, like roles; existing processes, and mainly issues, like complaints, feelings of discontent, criticism expressed by stakeholders of the situation considered problematic; the ultimate goal is to outline the "complexity of multiple interacting relationships" (Checkland and Scholes 1999). It should be noted that a *rich picture* is not static; rather it evolves based on the feedback from the original informants.

The cultural stream of analysis supports the evaluation of how (culturally) feasible the proposed changes to the problematic situation are.

Building Purposeful Activity Models. Based on the declared perceptions of the problematic situation presented in the rich picture and analysed from a cultural viewpoint, the researcher performs *the logic-based stream of analysis* (in Figure 3-2, *root definitions of relevant purposeful activity systems* and *conceptual models of the systems named in root definitions*). More specifically, to define the selected relevant model the researcher uses the "root definition" and the "CATWOE" mnemonic. The *root definition* describes the transformation process of the purposeful activity. Accordingly, the purposeful activity is defined as a system with an input, a transformation process and an output. In this study, the root definition follows the context discussed during the initiation of the study between the researcher and the Trust (see also 1.2.4).

Exploring the situation and taking action. The focus of S.S.M. after building purposeful activity models is to compare the relevant model with reality, i.e., what

actually happens (in Figure 3-2, *comparison of models and real world*) and propose action for improvement. Proposed action might entail "structural change, process change, and changes of outlook or attitude" or even all three. In any case, proposed changes should be "systemically desirable" and "culturally feasible" (Checkland 1981) (in Figure 3-2 *changes: systemically desirable and culturally feasible*). Systemically desirable changes are defined by the degree of relevance of the selected model with the situation considered problematic. Culturally feasible changes are changes meaningful within the cultural context of the situation under study. Further, action can be taken based on the proposed changes and accompanied by the subsystems of monitoring and control (Figure 3-2, *action to improve the problem situation*).

In this study, the researcher defines the root definition and outlines the proposed changes based on the initially defined Weltanschauung, i.e. the employment of knowledge management for the support of the management of the risk registers. As already mentioned, taking action is outside of the context of the current study.

In the application of S.S.M. we can distinguish two modes. In Mode 1, there is a formal and explicit stage-by-stage application of the methodology to structure enquiry, and to intervene; while in Mode 2, there is mainly a mental use of S.S.M. to make sense of the experience and find a way to describe the would-be-solving involvement in the situation under study. One development of S.S.M., presented in Checkland and Poulter (2006) and Checkland and Winter (2006), refers to the application of S.S.M. in the content of the situation considered problematic (S.S.M. c) and in the process of dealing with that content (S.S.M. p). In S.S.M. p, the practitioner(s) (researcher(s)) include themselves in the list of "problem owners", defined during analysis of the intervention. Their involvement in the study implies a purposeful activity, i.e., doing the study; hence can be planned and conducted using relevant models. The following figure (Figure 3-3) illustrates S.S.M. c and S.S.M. p. In this study, the researcher is influenced by the frame of mind of S.S.M. to shed light on the actual implementation of risk management policy and procedures in the healthcare organisation under study.

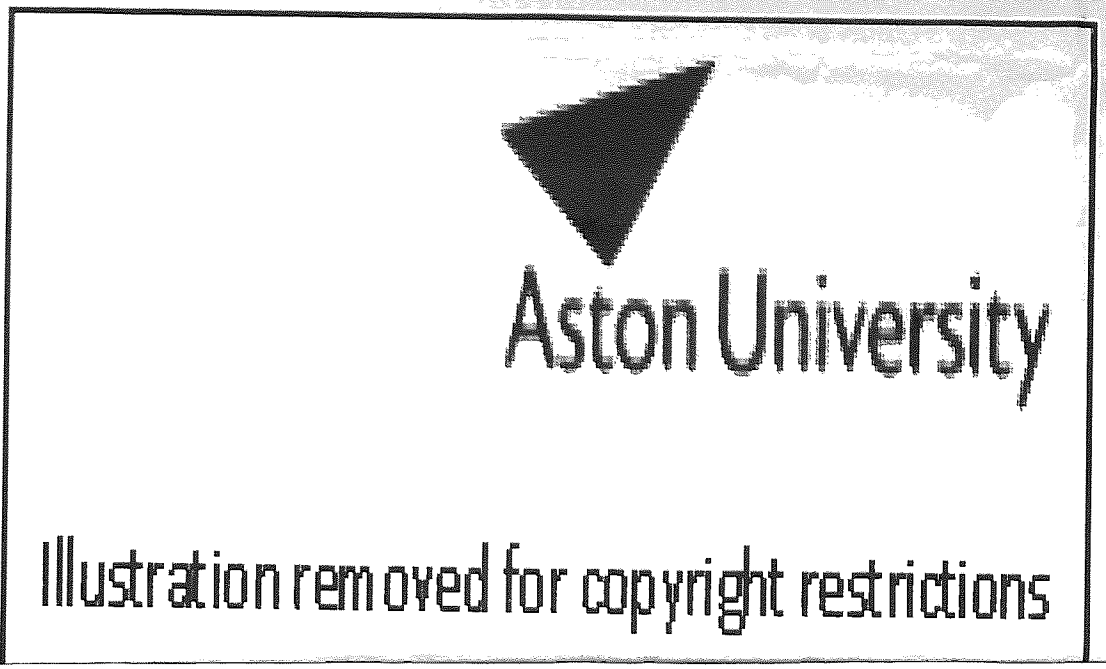


Figure 3-3. Two ways of using S.S.M.: S.S.M. p, and S.S.M. c; in Checkland and Poulter (2006)

Jacobs (2004) summarises the benefits of using S.S.M. especially in research in complex environments as the English N.H.S. Namely, S.S.M. provides a holistic approach of issues, a coherent view of organisational change by encouraging involvement of stakeholders, recognition and exploration of problem situations through creative and collaborative thinking, surfacing of discourses and meanings by bringing together different ways to interpret policies and situations by different types of professionals, view of strategy as multidimensional, modelling with view to improve, support of strategic thinking.

Criticism of S.S.M., on a paradigmatic level, comes from functionalists and radical sociologists ((Jackson 2000). Namely, the functionalist approach argues for objective truths in how organisations should be managed. Further, the radical traditions that focus on conflict and contradiction accuse S.S.M., following an interpretivist approach, of not being able to provide significant changes for the improvement of the organisations under study. Moreover, radicals point out that S.S.M. is carried out following existing hierarchies, and argues that research is bounded by these hierarchies. Thomas and Lockett (1979) state that power defines the standpoint of root definitions (in (Jackson 2000). Jackson (2000) argues that the debate about feasible and desirable change is inhibited by power imbalances deriving from the structure of organisations and society. "If soft systems practitioners were to challenge the hierarchical nature of organisations, the ultimate decision-making

rights of powerful stakeholders, or the unequal distribution of organisational resources to different stakeholders, they would soon provoke conflicts that reveal the deep status, economic and other inequalities that emancipatory thinkers see as such fundamental aspects of social reality" (Jackson 2000). Further, Burrell (1983) discusses that Checkland does not put these accusations under the microscope since S.S.M. projects are coming from the community of managers. Finally, S.S.M. is criticised as focusing on the fact that findings on a human situation are not static, are rarely repeatable in other situations, and questionably plausible. On this criticism Checkland and Holwell (1998) argue that this type of research should be carried out in a way that anyone who wants to test its findings can repeat the process.

In fact, the current study was initiated, monitored and supported by the management of the directorate of healthcare governance. The aim of the research was not to challenge existing hierarchies but to investigate how knowledge management can support risk management. Further, as discussed in sub-section 2.3.2 it is desirable to initiate improvements based on existing hierarchies and power networks, in N.H.S. organisations.

3.4 Research Design

As aforementioned, this study is guided by a research design that defines: the aim and scope of the study, data collection and data analysis procedures, and the context for theory development. This section describes how the research was actually carried out, based on these topics.

3.4.1 Aim and Scope of the Study

This study intends to reveal way(s) to support risk management by tools and/ or techniques from the field of knowledge management in an N.H.S. (Foundation) Trust in England. Namely, the organisation under study has risk management policy and procedures in place (NHS Trust Directorate of Corporate Services 2003) that define the risk management processes: risk identification, assessment, treatment and review, based on the risk management processes outlined in the AS/NZS standard

(AS/NZS 4360 1999). The risk register is the main tool to document and manage risks. The research focuses on: risk and risk management-related information and knowledge and how these are circulated in the organisation; the actual implementation of risk management policy and procedures; the stakeholders in the management of risk registers and their role in the process. These general topics are considered crucial for the establishment of an overall understanding of the situation under study, in order to address the questions presented in section 3.1.

As described in sub-section 1.2.4, this study was triggered by a meeting between the management of the directorate of healthcare governance and the researcher, where the organisation under study expressed concerns regarding the implementation of the risk management strategy in the Trust. For the researcher, it was crucial to have an overall view of how risk registers should be managed and how they actually were managed and record the perceptions of people involved in this situation. In that sense, the researcher's interaction with the organisation focused on data collection. It should be noted that, based on the initial plan on behalf of the researcher, there was no involvement of the organisation in data analysis. In practical terms, data analysis and the proposed framework that would involve knowledge management in the risk management cycle would be the "added value" of the researcher for the organisation.

3.4.2 Data Collection

The most commonly used sources of evidence used in case study research are (Yin 2003):

- Documentation: Documents can come from letters, memoranda and other forms of written communication; agendas for meetings, minutes of meetings, announcements, reports; administrative documents; relevant formal studies; articles on the press, etc. Documents can be useful in articulating an understanding of a situation or informing the researcher of an issue; can be reviewed repeatedly; and are exact in the data they contain. Moreover, documents enable the researcher to obtain the terminology of the informants

and represent data that are important as informants have given attention and effort to record (Creswell 1994). However, they should not be taken, always, as an objective source of evidence as they reflect the bias of their author.

- Archival records: This type of evidence refers to lists (e.g., of names), charts, budgets, diaries that can be used in conjunction with other type of documentation. Archival records are precise and have the same advantages as documentation (presented above). On the other hand, they share the same weaknesses as documentation.

- Interviews: This is one of the most important sources of data in case study research. Usually, interviews for case studies are not carried out as structured queries. The interviewer has to follow a line of inquiry and phrase the questions in an unbiased manner. Case study interviews can be: open-ended, where the interviewee is encouraged to provide her/his insights on a situation; focused, where the interview takes place for a short period of time and the interviewer follows a certain line of questions, usually, outlined in the case study protocol; survey, entailing structured questions and producing quantitative data. Another classification of interviews is (Creswell 1994): face-to-face or in-person, telephone, and group. The advantages of interviews are: they are targeted focusing on the research topic and insightful, providing perceptions and inferences. On the other hand, interviews might be biased as information is filtered based on the opinion of the interviewee, might provide inaccurate data due to poor recall, the interviewee might say what the interviewer wants to hear, or the interviewer might out of fear hide true insights. Recording an interview might create problems in case: interviewees refuse to be recorded, recording is perceived as a substitute to listening, there are no media for recording and no plan for transcribing the interview.

- Direct observations: Through direct observation involving participation in meetings, sidewalk activities, factory work, or in classrooms, the researcher is able to witness certain behaviours and increase the understanding of the context of the situation under investigation. This type of evidence can be supportive to

data collected through documentation and interviews. However, observations might be time-consuming; biased due to selectivity and limited coverage; or the researcher might be seen as intruder.

- Participant observation: In addition to direct observation in the setting of the case study, the researcher might also be an active observer, having a role in the organisation or any other type of setting under investigation. Even though participant observation can provide several opportunities for data collection, it encounters certain problems the major being, bias of the researcher as s/he might be able to manipulate data, or lack of opportunity to take notes.

- Physical artefacts: Physical or cultural artefact, e.g., a device, a tool, a work of art, are in some cases useful in the course of research. The advantages are: gaining insight into specific technological or cultural matters, while the problems are related to availability and selectivity of respective objects.

The initial step of this research was to establish a high level of pre-understanding of the organisation, and its risk management principles and methods. The researcher has followed the formal induction process of the organisation, has read through general documentation about the Trust and specific about risk management, and has also participated in informal discussions with members of the Clinical Governance Support Unit (C.G.S.U.) (directorate of healthcare governance). Further, evidence collected aimed at the investigation of the risk management processes in relation to the risk registers, to reveal how these processes are carried out, the information and knowledge requirements for these processes, the stakeholders of the processes around the development and management of the risk registers, and any concerns regarding these topics in the organisation under study. The guiding principle of data collection was data triangulation through multiple sources of evidence.

In this research, existing documents, such as informative documents, reports, presentations of strategy and policy, agendas for meetings, documentation of meetings (e.g., risk registers) related to risk management, its environment, strategy,

culture, processes, policies and procedures, structures and initiatives regarding knowledge management were gathered from the hospital and the internet, mainly in electronic format.

Moreover, archival records (e.g., lists of people, lists of departments) have been used for planning purposes, i.e., basically to organise data collection through interviews.

In addition, personal interviews were selected to provide the richness of information required by S.S.M. Interviews were open-ended (unstructured) and focused (semi-structured) and aiming to investigate:

1. The organisation as a whole: to understand the environment and factors that might influence risk management and the flow of information and knowledge in risk management (i.e., N.H.S. regulations, Trust regulations, Trust/ hospital structures and culture).

2. Risk management issues: guided by the research questions (section 3.1) to understand how risk management and especially the risk registers operate.

3. Knowledge management issues: guided by the aim of the study to understand the role of knowledge in risk management, the relation between risk and risk management related information and knowledge, the way this knowledge is managed in the context of risk management.

Interviewees were divided in three groups: (a) management of the directorate of healthcare governance, (b) risk register lead/ representative of directorates, and (c) C.G.S.U. One unstructured interview was addressed to an informant from the upper level management and was guided by a list of themes for discussion, as he had limited time for the interview and was not to be questioned about the day-to-day operation of risk management. Rather, his overall sense of the acceptance of risk management in the Trust and his vision regarding the risk management strategy were to be captured in the context of a discussion. For people involved in the daily

tasks of risk management semi-structured interviews were selected. The outline of the interviews is attached in Appendix F. Before the formal interview cycle, a pilot interview was conducted with a member of the directorate of healthcare governance. No change was made in the questions after the pilot interview.

A letter introducing the study (Appendix E), prepared by the researcher and approved by the director of healthcare governance, was circulated by the directorate of healthcare governance to the rest of the organisation. Following the letter, the researcher contacted potential interviewees, by phone. The original intention was to focus on people who work at the hospital and have critical positions concerning risk management and clinical governance. In an attempt to cover optimistic and pessimistic views on risk registers, the C.G.S.U. has indicated directorates, or even people in directorates. After several follow-ups (mainly due to lack of availability and not unwillingness to be interviewed), the final number of interviews was: three from the management of the directorate of healthcare governance, eight from the clinical and corporate directorates, and nine from the C.G.S.U. An Interview Protocol (Appendix D) guided the interviews. All interviews, apart from the one (unstructured) with the medical director of healthcare governance, were digitally recorded.

The researcher was able to observe meetings in the C.G.S.U. and in the directorates regarding risk management. In total, eight observations of directorates' meetings and two observations of C.G.S.U. meetings were recorded. The observations contributed in a general understanding of the risk management processes in practical terms and several cultural and political issues. Observations followed the Observation Protocol (Appendix D).

Is it noted that, a Case Study Protocol was developed to support the whole data collection process, based on Yin (2003). The Case Study Protocol, presented in Appendix D, has the following sections: where, defining the location where data would be collected; when, defining the time limits of data collection; what would be collected, based on the objectives of the research; how data would be collected; who could provide data; administration of collected data; constraints in data collection;

and format of presentation of collected data. The Case Study Protocol outlines, as well, the Interview Protocol and Observation Protocol (Appendix D). It is noteworthy that the Case Study Protocol was refined and approved by the director of healthcare governance of the organisation under study.

In the context of this study, participant observation was not possible, due to the position of the researcher in the organisation, i.e. the researcher was not employed by the organisation. Furthermore, the collection of physical artefacts was not relevant to the context of the current research.

Deviations from the Original Plan

The research project due to the nature of the organisation had some limitations that could not be predicted. More specifically, the interval for data collection through interviews was longer than expected due to the restricted availability of the informants, while in some cases the actual duration of each interview was longer. In some cases interviews have been cancelled, due to unforeseen circumstances. The deviation from the time plan prevented revisiting the informants to verify the information collected from them. For that reason, as discussed in sub-section 3.4.3, the researcher has used the exact words of the informants (as recorded digitally) in data analysis.

Moreover, after the interviews of the two groups of informants in the directorate of healthcare governance (management of directorate and C.G.S.U.) the researcher had to adapt the outline of the interview for the directorates in order to triangulate the data received by the management of healthcare governance and the C.G.S.U. In order to change the questions, a preliminary analysis of the data collected was conducted.

Finally, though the contact with people from the directorate of healthcare governance was easy, this was not the case with the rest of the directorates. The director of healthcare governance and responsible for the research project on behalf of the organisation, had to mediate in the process.

3.4.3 Data Analysis

Creswell (1998) argues that, when analysing qualitative data, the researcher moves in "analytic cycles rather than using a fixed linear approach" and follows a data analysis spiral, as shown in Figure 3-4.

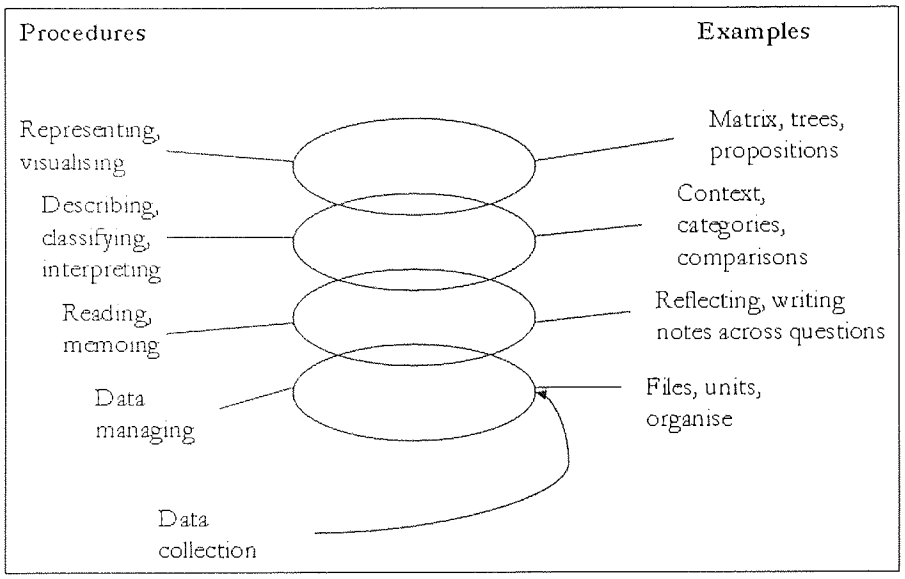


Figure 3-4. The data analysis spiral

In this study, the researcher has organised all relevant documentation and archival records in either electronic or paper files in order to be able to revisit data regarding the organisation and risk management based on the needs of data analysis. As already mentioned the researcher read through all relevant documentation at the beginning of the research and used the archival records to organise the observations and interviews.

Recorded interviews as the key source of evidence have been converted into electronic transcripts and stored as electronic files into folders. Most transcripts from the interviews with the C.G.S.U. were accompanied by a sketch describing the flow of the risk management processes. These sketches were stored into paper folders. After the transcripts have been stored and organised the researcher read through all the transcripts to gain a general sense of the data collected. Especially

for the evidence gathered from members of the C.G.S.U. the existing sketches that were designed during the interviews were rather useful as a visual reminder of what has been discussed. However, the sketches did not provide any additional evidence.

The transcripts were, further, organised using the software N6 (QSR International Pty Ltd.). More specifically, two "projects" were created in N6, one containing the interviews with the directorate of healthcare governance and one containing the interviews with the rest of the directorates. The questions for the interviews were structured around the objectives of the study outlined in section 3.1. Based on this, the researcher defined the major "nodes", i.e. categories for the initial coding of the data collected, for both N6 "projects" (directorate of healthcare governance and other directorates). In alphabetical order (as presented in N6) these nodes (categories) are:

(1) KM (knowledge management), with sub-nodes (sub-categories):

Information; knowledge management initiatives (with sub-nodes/ sub-categories: current knowledge management initiatives, future knowledge management initiatives, perceptions on knowledge management initiatives); knowledge (with sub-nodes/ sub-categories: existing knowledge; required knowledge); information flows.

(2) RM environment (risk management environment), with sub-nodes (sub-categories):

External RM environment; internal RM environment (with sub-nodes/ sub-categories: roles, relationships).

(3) RM culture (risk management culture), with sub-nodes (sub-categories):

Norms; values; sharing; learning; power.

(4) RM processes (risk management processes), with sub-nodes (sub-categories):

Risk management planning (based on the AS/ NZ standard); risk identification; risk assessment; risk treatment; risk management monitoring and review (based on the AS/ NZ standard); risk management communication & consultation (based on the AS/ NZ standard); perceptions on risk management process (with sub-nodes/ sub-categories: strengths & positive, weaknesses & negative & suggestions, importance of risk management); risk review; risk register management.

After the initial coding of collected data, the researcher went through the text in every "node" (category) and added some new sub-categories, such as:

- In the "node" *risk management culture* (3), under the "sub-node" *sharing* (3.4) four new "sub-nodes" were added: in CGSU, CGSU and directorates, Trust-wide, within directorates.

- In the "node" *risk management processes* (4), under the "sub-node" *risk management communication and consultation* (4.6) two new "sub-nodes" were added: reporting, formal networks.

- In the "node" *risk management processes* (4), under the "sub-node" *risk register management* (4.10) three new "sub-nodes" were added: Trust risk register, DATIX, local and directorate risk registers.

The final structure of "nodes" (categories) of data in N6 is presented in Appendix G.

At this point, it becomes apparent that N6 has not been used as the main tool for theory development; rather it has been used to organise the volume of data and support the categorisation of each group's perceptions by the researcher.

The existence of two separate, but similar in terms of "nodes" (categories), groupings of data for each of the major groups in the course of risk management for the organisation under study, i.e. the directorate of healthcare governance and the rest of directorates, shed light on conflicting views of the same topics.

After the second major categorisation of evidence, the researcher summarised the perceptions of both groups of informants for each topic regarding the risk registers and the objectives of the study as outlined in section 3.1. This way, data analysis moved from the classification of evidence to interpretation. In this study, by interpretation the author of the thesis means the creation of a taxonomy for the exact words of the informants in order to define the problematic situation regarding the management of risk registers in the organisation, as presented in detail in the following chapter. In other words, statements from the interviews are used, as having equal worth, to show how people from the directorate of healthcare governance and the other directorates experience the risk registers.

As shown in Figure 3-5, informed by principles of S.S.M. and as presented in detail in the following chapter (Chapter 4) the Rich Picture (Figure 4-2) outlines the relationships and perceptions of people in the cycle of risk management. In addition, analysis of the cultural context of risk management in the organisation under study reveals characteristics of the intervention, issues regarding the structures and political systems in risk management. Finally, a conceptual model based on concepts of knowledge management for improvements in risk management is developed, compared with the current situation and concluded in changes proposed to be introduced in the organisation.

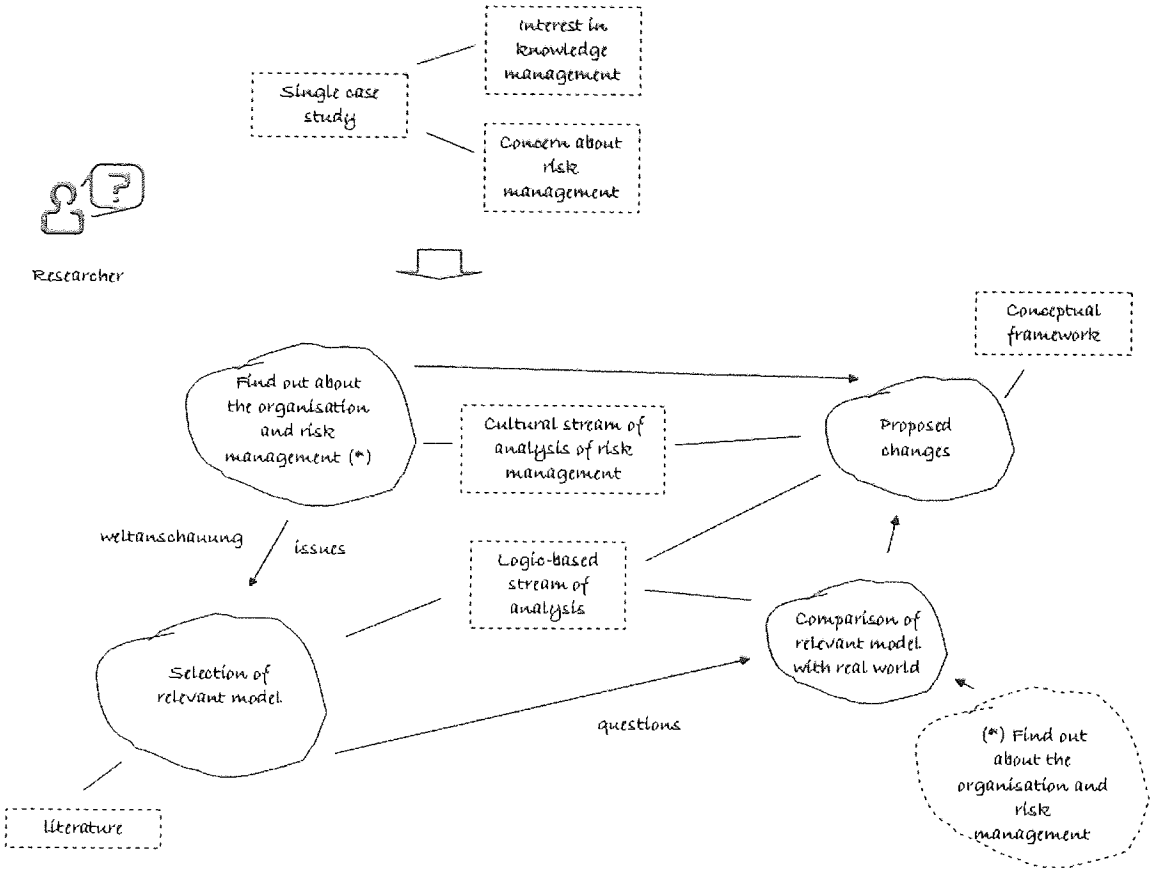


Figure 3-5. Research process

3.5 Criteria for Quality

Several issues regarding quality and ethics of the current research are taken into consideration. This research is based on a case study and is influenced by principles of S.S.M.; thus faces the following challenges: (a) ability of the researcher to capture and interpret the situation (Bryman 1988), (b) limited potential for generalisability (or external validity), validity and reliability as perceived in deductive approaches.

Bryman (1988) argues on how feasible it is to capture and interpret the perceptions of others. In the current study, answers coming from people belonging to the same group seemed to be in agreement, while in the presence of conflicting views mainly between the members of the C.G.S.U. and the directorates, the researcher has presented and taken into account both views.

Moreover, when research relies on a single case study, it is difficult to substantiate that the findings are typical and develop empirical generalisation. However, if the case is typical of a group of similar cases existing in reality, it would be possible for other researchers to examine them. On the other hand, the findings of case studies can be integrated in a theoretical context, leading to theoretical generalisation. In addition, Gummesson (2000) argues that, "It no longer seems so 'obvious' that a limited number of observations cannot be used as a basis for generalisation." Generalisation can be achieved through a detailed description of the system under investigation.

In this research, empirical generalisation is achieved through detailed description of the organisation and especially the area under study and of the data analysis process that relates risk management with knowledge management and leads to the development of the proposed framework.

According to Kirk and Miller (1986) validity refers to the extend to which a measurement procedure gives the correct answer and reliability refers to the extent to which a measurement procedure provides the same result whenever it is carried out. In particular, construct validity refers to the "extent to which a particular measure relates to other measures consistent with theoretically derived hypotheses concerning the concepts (or constructs) that are being measured" (Carmines and Zeller 1979).

In the case of qualitative research, "validity is not a matter of methodological hair-splitting about the fifth decimal point, but a question of whether the researcher sees what s/he thinks s/he sees" (Kirk and Miller 1986). Further, during data collection, the researcher has used as many sources as possible to establish a detailed chain of evidence to achieve (construct) validity and reliability. In addition, on reliability Carmines and Zeller (1979) argue that no measurement can be repeated exactly as to bring the same results. Therefore, reliability relies on the degree of consistency of results among repeated measurements.

Finally, case studies in general and this particular case face certain moral issues. Case studies usually present personal views and circumstances that might cause "risk exposure and embarrassment" if revealed in public. (Stake 1995) This research entails information regarding a sensitive issue (i.e., risk management) in a sensitive sector (i.e., healthcare, N.H.S.) and has been conducted taking into account the strict limits of disclosure of any information in public, defined in the confidentiality agreement between the researcher and the organisation under study.

3.6 Conclusions

This chapter has outlined the basic social theories that can affect a research study in the field of social sciences and has presented the dominant sociological paradigm and methodological framework that guides the whole research.

In particular, the current study focuses on the knowledge-related perspective of organisational risk management and is based on a single case study in an English N.H.S. (Foundation) Trust. The dominant paradigm that influences the study is interpretivism, while data collection, based on documentation, observations and personal interviews and data analysis are conducted following the principles of Soft Systems Methodology. The research design that describes the aim and scope of this study, the data collection and data analysis, based on the Case Study Protocol, is presented. Finally, this chapter discusses quality issues and ethical considerations of this research.

The following chapter presents the analysis of data, informed by the frame of ideas of S.S.M., and the findings of the research, the proposed framework and relevant changes for the enhancement of risk management with methods of effective communication of risk and risk management related knowledge in the N.H.S. Trust.

CHAPTER 4. ANALYSIS

4.1 Introduction

The study investigates risk management and especially the risk management processes and the development and management of risk registers in a healthcare organisation, namely, an English N.H.S. (Foundation) Trust. The aim of the study is to propose a framework for the support of this area of risk management in the organisation under study through knowledge management. This chapter outlines the issues revealed by the collected data and presents the proposed framework.

Analysis of data collected from the organisation under study was influenced by concepts of Soft Systems Methodology as presented in Checkland and Scholes (1999) (described in sub-section 3.3.2). This chapter starts with the cultural stream of analysis to develop a detailed view of the intervention, and the cultural and political context of it. As described in subsection 3.3.2, the cultural stream of analysis includes analysis of the intervention, or Analysis One (i.e., definition of the context of the problematic situation under investigation), "social system" analysis, or Analysis Two (i.e., the roles, norms, and values of the stakeholders of the problematic situation), "political system" analysis, or Analysis Three (i.e., the context of power in the problematic situation), and the rich picture of the problematic situation. The cultural stream of analysis leads to the key issues of the situation under investigation.

Following, the logic-based stream of analysis is presented, as described in sub-section 3.3.2. In this part, the researcher follows a "why-what-how" structure. Namely, "why" consists of the requirements for risk management, as revealed by data and stressed in relevant literature; "what" refers to the context of corrective or supportive actions stemming from the area of knowledge management; and "how" defines and describes in detail the proposed framework and its limitations. Issues revealed through the cultural stream of analysis and relevant literature contributed to the requirements for risk management ("why"). Following, literature in the area

of knowledge management shaped the context of corrective or supportive actions ("what"). At this stage, a model of the relevant system was selected and through the root definition the relevant model was described ("how"). Finally, the relevant model was compared with perceived reality of risk management in the Trust and the proposed framework was developed, accompanied with proposed changes. The data analysis process is illustrated in Figure 4-1.

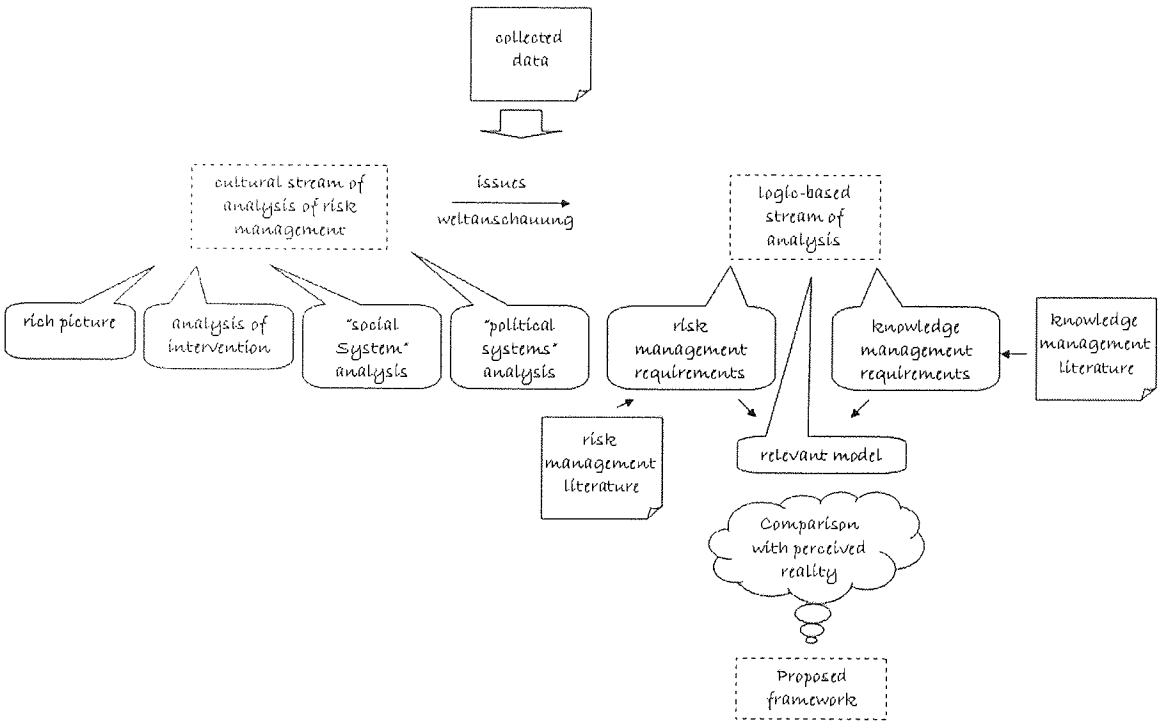


Figure 4-1. Process of Data Analysis

4.2 The Cultural Stream of Analysis

This section describes the cultural context of risk management in the organisation under study. This analysis sheds light on the important and relevant points of concern and guides, further, the development of the proposed framework, taking into account the focus on knowledge management. It is crucial to note that the stream of cultural analysis exists in parallel with the definition of the supportive framework; even when the framework takes shape, findings of the cultural analysis support the evaluation of the feasibility of proposed changes. "The changes will be

implemented only if they are perceived as meaningful within that culture, within this worldview." (Checkland and Scholes 1999)

4.2.1 *Analysis of the Intervention*

Following Checkland and Scholes (1999), the intervention in the situation considered problematic involves three major roles: *client*, *would-be problem solver(s)*, and *problem owner(s)*. In this particular case, *clients* are the two directors of healthcare governance (medical and corporate) in the Trust under study. At the beginning of this study, the directorate of healthcare governance had just launched the project of the establishment of risk registers in the directorates and thus proposed the particular area of risk management, i.e., risk registers, to be the focal point of research with ultimate goal the support of this area by methods and techniques of knowledge management. More specifically, the *client* pursued (a) retention of knowledge, (b) coordination of information and knowledge that flows in the cycle of risk management and (c) creation of an integrated image of risks, both clinical and corporate, throughout the Trust. Second, the *would-be problem solver* is the researcher as the key analyst of the problematic situation and contributor of relevant methods and techniques from the area of knowledge management. Finally, the *problem owners* are the directorate of healthcare governance and individuals from the other directorates involved in the management of risk registers, i.e., the risk register leads.

4.2.2 *Social System Analysis*

This part of analysis focuses on the teams or individuals that are directly involved in the lifecycle of the risk registers, i.e., the director and the C.G.S.U. from the directorate of healthcare governance and the risk register leads from all the directorates. It is noteworthy that, evidence for the *Social System Analysis* derives from the interviews as there is no job description in the documentation regarding the risk registers.

Roles in the directorate of healthcare governance:

The (corporate) *director of healthcare governance* oversees the risk management program, reports any issues or concerns to the Trust Board, delivers and directs the risk management strategy.

The *head of C.G.S.U.* has to supervise the team of facilitators, quality improvement officers and audit assistants, announce guidelines, validate the significant risks, and make the strategic directions for risk management operational.

The *C.G.S.U.* has to support the directorates, especially in reviewing risks, and collate the Trust Risk Register. The *facilitators* have to support the directorates in the management of their risk registers, collate the Trust risk register by integrating the significant and frequently occurring risks, and serve as the link between directorates and committees. The degree of support to each directorate depends on the facilitator. Each facilitator is specialised in an area of governance (audit, risk registers etc.). The *quality improvement officer* is a key role for closing the risk management loop: follow up on the action plans of the directorates, and make sure action plans are implemented. The *audit assistants* deal with audits in the directorates and circulation of new standards to them.

It is noteworthy that, the Trust *risk manager* is not involved in the day-to-day operations of the risk registers.

Roles in the directorates (for risk management):

In turn, each directorate, clinical or corporate, has one *risk register lead* responsible to coordinate the risk register update and maintenance, collate risk information from all areas in the directorate and any local risk registers, with assistance from the C.G.S.U. There is no job description for the risk register leads; the facilitators guide them.

Norms:

Norms refer to the expected behaviour of each role.

In the directorate of healthcare governance, the (corporate) director is expected to give the strategic directions to the C.G.S.U. so that they are operationalised by the head of C.G.S.U. and diffused in the Trust by the facilitators. In the C.G.S.U., the job descriptions of the team members are quite lengthy, but do not refer explicitly to the management of the risk registers. One facilitator states, "*We are facilitating, we have to have the knowledge how to do that and help the directorates to do it and ensure they do it really*".

The other directorates believe that the members of the C.G.S.U. need to be capable to communicate with people who are the real experts in their area. Further, the clinical directorates think the facilitators should possess clinical knowledge.

On the other hand, the management of the directorate of healthcare governance does not expect the facilitators to be the experts, just to circulate the right information and give the rationale needed for the development and management of the risk registers. When there is a problem, any member of the C.G.S.U. can say, "*I'll bring this issue to our team*", as stated by a facilitator.

Based on interviewees from the C.G.S.U., the risk register leads in the directorates "*... should know what they have to do and how to score the risk, what action to be taken*". One facilitator believed, "*risk management and clinical governance should be something that everybody has the knowledge to do. It is a system of working and a way of thinking that everyone must be taught from the beginning.*"

Values:

Besides the description of roles and the expectations on them, i.e., the norms, roles are judged by other people in the organisation based on certain standards, the values.

Roles in the course of risk management, with reference to the risk registers, are judged based on the ability and willingness of each participant to communicate and share information and know-how and on the degree of knowledge they possess regarding the management of risk and the implementation of the risk management policy and procedures.

The role of facilitators is, generally, considered important by both the C.G.S.U. and the rest of the directorates, based on the aforementioned values. The facilitators judging their impact on risk register, believe they provide essential support ensuring the viability of the risk registers. They "*are the link between risk management and the directorates*" and "*educate directorates*", as two facilitators said. However, they believe their role is limited and they do not have enough power to impose policies and procedures related to the risk registers. From the interviews, there was no unanimity as to whether the role of the C.G.S.U. is purely administrative or not. The management of the directorate of healthcare governance stated, "*risk management would happen without the C.G.S.U., but they improved reporting, dissemination to the directorates, and made the process more effective*".

The relationships in the C.G.S.U. are good as each member tries to help the other, share what they know. One interviewee from the C.G.S.U. sums this up by saying "*other facilitators help me to improve my knowledge*". Moreover, the head of C.G.S.U. is supportive and helps them to learn and improve, through an "*open door policy*", as she stated and facilitators agreed.

Similarly, the other directorates recognize the motivating and "reminding" role of the C.G.S.U., as well as their knowledge on risk management related issues. However, especially in the clinical directorates they believe that knowledge on their specific areas, i.e., clinical knowledge would increase their understanding on the severity of the issues they report; "*to understand clinically what the issues are and what the constraints are is of great benefit*" said one interviewee from a clinical directorate. From the interviews, it becomes obvious that the degree of satisfaction with the C.G.S.U. depends on the facilitator dealing with each directorate. In general, the clinical and corporate directorates appreciate the administrative support they get from the C.G.S.U.

Regarding judgments on the role of the risk register lead, from the interviews with the C.G.S.U., there was scepticism as to whether the directorates in the Trust are able to handle their risk registers without support. One facilitator said, *"we try to educate them but I don't feel they are ready to be left alone"* and another added *"the directorates do not have the knowledge to move to risk management by themselves"*.

Proposals for new roles:

Overall, the role of the "quality improvement officer" who monitors the action plans is considered a rather valuable one by the management of the directorate of healthcare governance. Furthermore, a new role of "risk assistant" is proposed by the majority of the C.G.S.U. This role would be more dedicated to the risk registers so that the facilitators could focus on other aspects of clinical governance. The management of the directorate of healthcare governance agrees that the resources are limited; however stresses the importance of the role of quality improvement officers. On the other hand, the other directorates believe that a useful new role would be someone dealing with training and education regarding the risk registers and risk management.

4.2.3 Political System Analysis

This paragraph describes the political dimension of the cultural context of risk management in the Trust. The presence of various types of stakeholders, in other words highly specialized professionals, implies different interests and agendas. These politics ("process by which differing interests reach accommodation" (Checkland and Scholes 1999)) within the organisation under study were mainly implied by the interviewees' answers to open-ended questions.

Within the C.G.S.U., there does not seem to be significant conflict of interest and the environment, in general, is pleasant and encourages sharing of experiences and mistakes. However, a considerable point of view coming from the management of the directorate of healthcare governance stated, "*there are also dynamics in the teams*" and "*...they [facilitators] are also competitive, not outwardly but they are all at the same level; they don't want to show that they cannot manage their directorate*". The authority of the

management of the directorate of healthcare governance is recognised on a substantial level, based on the experience of the management team. In other words, in the directorate of healthcare governance power is imposed indirectly in a teamwork-oriented and open door policy atmosphere.

Between the C.G.S.U. and the other directorates, members from the management of the other directorates behave more authoritatively based on the expertise in their area and their position on the organisational chart. The facilitators believe they do not have enough power to impose the appropriate management of the risk registers, they just have to be convincing in their interaction with the other directorates. The relationship depends on the personality of both the facilitator and the risk register lead and on the existing channels of communication.

However, the rest of the directorates express their concern on the level of control over the management of their risks, as the committees make the final decision, especially on significant risks, i.e., the ones that usually need funding. The participation of members of the directorates in certain committees influences the degree of involvement in the decision making process.

Inside the clinical and corporate directorates it is not roles but specific individuals who "*control everything*" (quote from one interview with the directorates.). One risk register lead states, "*You have… 1-2 clinical directors with great influence in the directorate who want to control everything.*" The degree of knowledge and interest of the management team of the directorate affects the success of the implementation of the risk management policy and procedures, as well as the dissemination of risk or risk management related achievements and issues in the directorate and the whole Trust.

An important issue relative to power and authority is the "blame/ no blame" culture. In the Trust "no blame is upheld but accountability is not diminished" (NHS Trust Directorate of Corporate Services 2003). Further, based on seniority or profession, there are groups that seem to be intimidated in case they are involved in an adverse incident. A consultant said, "*In nurses there is a punitive rather than educational approach.*" and "*…there is a belief doctors don't do mistakes and they cannot say I don't*

know..." The C.G.S.U. believes that fear will disappear as the environment becomes supportive of errors. Consequently, the dynamics among the healthcare professionals are not guided by the formal no blame culture of the Trust; rather there is a stereotypical expression of power in case of mistakes.

In general, informants from all groups trust that no one keeps intentionally knowledge or information to himself. On the other hand, there is not a strong culture to make all contribute.

4.2.4 Rich Picture

The relationships, perceptions, judgements and issues raised, during data collection, by stakeholders of the current situation, in the system under study, are depicted in the *Rich Picture* (Figure 4-2). The rich picture presented in the thesis is designed by the researcher and is based on the actual words of the interviewees. As discussed in sub-section 3.4.3 evidence collected mainly from the interviews was analysed and "allocated" in topics ("nodes") based on the objective of the research, presented in section 3.1.

The researcher "draws" the current situation under study around the risk management processes influenced by the way the facilitators from the C.G.S.U. were describing the risk management cycle in the interviews. Namely, each one of the risk management processes (risk identification, risk assessment, risk treatment, risk review is associated with the views of interviewees from the directorate of healthcare governance as well as those of interviewees from both clinical and corporate directorates. Further, the views of people on the existence of risk registers, and the planning, structure, administration of risk management are illustrated. It should be noted that, the "views of interviewees" or "views of people" are presented in the rich picture with their exact words, as the researcher believes that these quotes are indicative and accurate enough to describe the risk management cycle and its issues to someone who is not a member of the organisation under study. An even more comprehensive list with quotes from the data collection that are not in the Rich Picture due to practical reasons, i.e.,

limitations in the actual size of the figure, but are consistent with evidence presented in it, can be found in Appendix H. It is noted, that quotes included in Appendix H do not present perceptions not already included in the Rich Picture.

From the data collected, it becomes clear that the two key groups participating actively in the cycle of risk management, i.e., the C.G.S.U. with the management of the directorate of healthcare governance and the rest of the directorates, both clinical and corporate:

- Appreciate the importance of risk management. However, both groups acknowledge that the higher levels in the hierarchy of the Trust are more aware of the significance of risk management for the organisation.

- Collaborate well in general and pinpoint the weaknesses in communication, and mainly in the formal channels of communication.

- Remark that the majority of the directorates lack deep knowledge with respect to the systems and processes to manage risk, hence training is proposed.

- Pinpoint the absence of uniformity when dealing with the risk registers (i.e., developing and managing the risk registers) and risk in general.

- Recognise the importance of interpersonal relationships and the impact of the personality of the facilitators, the risk register leads and the management of the directorates on the successful implementation of the risk management policy and procedures.

Moreover, the perceptions of both sides on how risk management is currently carried out seem to be in agreement, except for a few points:

- In the case of feedback on significant risks to the directorates, some members of the C.G.S.U. argue that there is some kind of feedback where the directorates completely disagree. On that issue, the official view coming from the

management of the directorate of healthcare governance is that there is no formal procedure regarding giving feedback to the directorates.

- Referring to risk treatment and control, the C.G.S.U. argues that directorates are unwilling to develop business cases, where the directorates interviewed opposed to that. On that issue, further relevant data have revealed a difficulty on behalf of the directorates in developing business cases, yet they argue that only the presentation of business cases leads to risk treatment of significant risks, especially those that need funding.

- Regarding risk assessment and prioritisation and especially scoring, the two groups have completely different views. In essence, the directorate of healthcare governance seems to assess risks from a higher level while the directorates have a closer view. On that issue, one can trace vagueness in the definition of risk in the risk management policy and procedures and either absence or low level of comprehensive knowledge of "*what is going on in the organisation*".

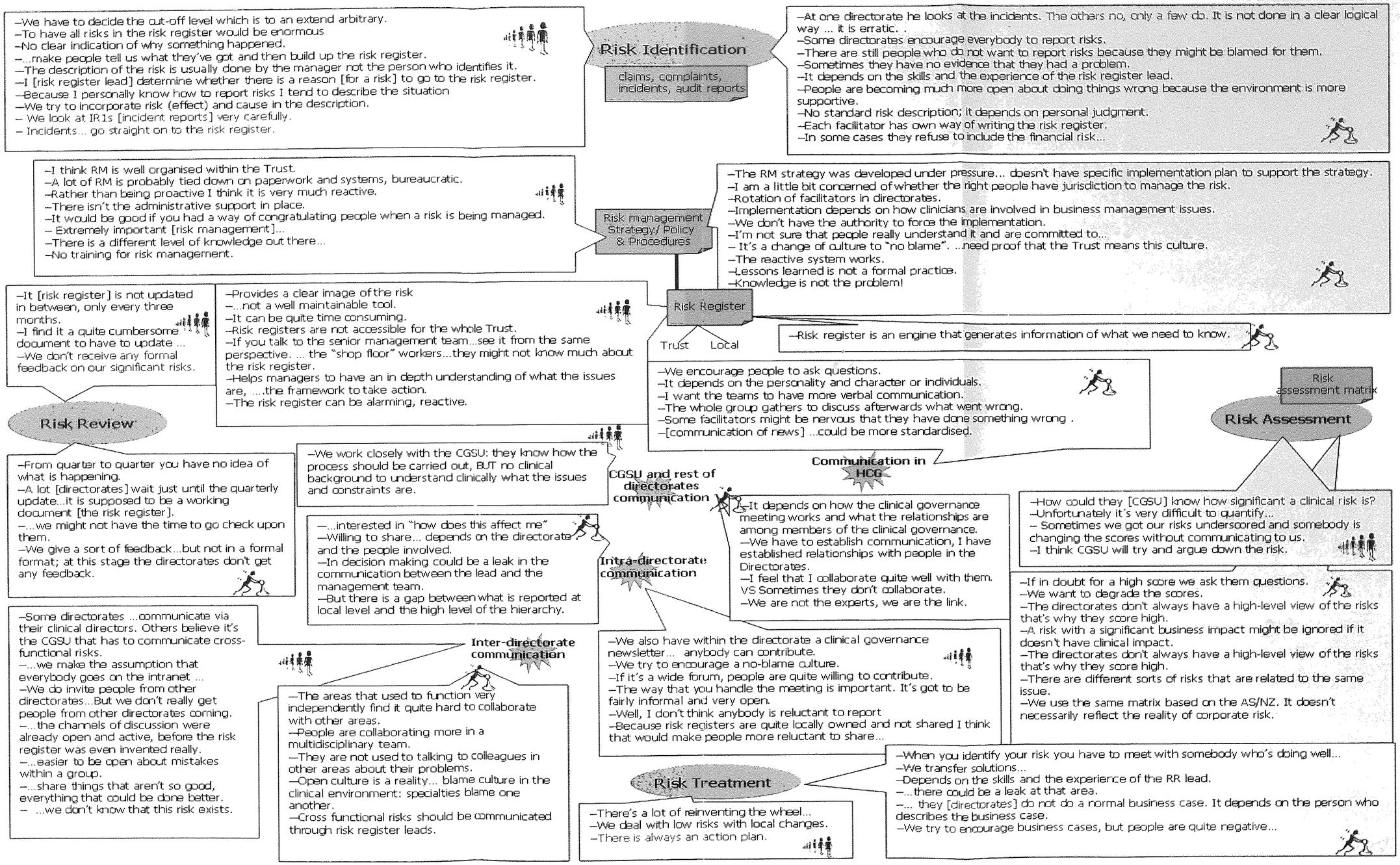


Figure 4-2. Rich Picture

The following table (Table 4-1) explains the symbols used in the Rich Picture above (Figure 4-2).

Yellow box	Viewpoint of clinical and corporate directorates
Grey box	Viewpoint of the C.G.S.U.
Orange box	Artefacts relevant to risk management processes
Quotes in red print	Contradictory views between the C.G.S.U. and the rest of the directorates

Table 4-1. Rich Picture Symbols

4.3 Key Issues of the Problem Situation

This section outlines the key issues regarding risk management implementation and information and knowledge management, as revealed by the data collected and presented in the Rich Picture (Figure 4-2) and Appendix H.

There is no specific implementation plan for the risk management strategy.

The risk management strategy does not have a specific implementation plan, as stated by the management of the directorate of healthcare governance, "*The risk management strategy was developed under pressure. It includes specific objectives, but not explicitly of risk management strategy, it doesn't have a specific implementation plan to support to a degree the strategy.*" Moreover, there are no clear roles of people involved. In general:

a) The implementation of risk management strategy based on the risk management policy and procedures is not consistent throughout the Trust. One facilitator said, "*...required more organised management of risk by directorates.*" However, in one interview with a directorate it is stated that "*...risk management is well organised...*" The implementation of the risk management processes is not the same for all directorates. Again, it depends on the style of each facilitator and/ or whoever is responsible in each directorate for the risk register; "*it depends on how clinicians are involved in business management issues*", believed one member of the directorate of healthcare governance. Moreover, one facilitator said, "*In terms of the risk registers I*

am a little concerned of whether the right people have jurisdiction to manage the risk.", pinpointing the ad hoc process of selecting the risk register leads.

Further, the facilitators do not have the power to force directorates to comply with the policies and procedures of risk management. "*There's no way that we can actually say 'you have to implement it'*", said one member of the C.G.S.U.

b) In order for people to contribute to risk management, increased awareness on the importance of risk management is required. Senior management is more aware of the importance of risk management. Other levels of the organisational chart possess significant knowledge related to the occurrence of risks, but might lack understanding of how crucial it is to report and manage risks. Additionally, not everyone who might contribute to risk management has access rights or the time to access the risk registers and the intranet of the organisation. *"They tell me that it is accessible but I guess it is not accessible for the whole Trust"*, said an interviewee from a directorate.

In fact, the involvement of people in risk management is influenced by the existence or absence of a "no-blame" culture. In essence, there is no evidence of a "no-blame" culture in the organisation. As aforementioned, in the Political System Analysis (4.2.3) "no blame is upheld but accountability is not diminished" (NHS Trust Directorate of Corporate Services 2003) in the organisation. One facilitator observed that there is blame culture between specialities. Further, stereotypes about certain professions or even the culture of different professions shape the no-blame image of the Trust and control the willingness to participate and share.

c) The proactive side of risk management is deficient. An informant from a corporate directorate said, *"Another potentially weak point is that it [the risk register] can be alarming, quite reactive..."* and from one interview with a member of the C.G.S.U. it is noted that *"the reactive system works"*. Risk is addressed when it occurs in order to be treated with no consistent mechanisms to prevent it from happening in the future in other areas of the organisation.

d) There is no formal training on the processes and essence of risk management for the C.G.S.U. or the other directorates. In the interviews, one directorate suggested a new role dedicated to training and education issues for risk management.

The process of risk identification is often erratic.

Based on the risk management policy and procedures (NHS Trust Directorate of Corporate Services 2003), risk identification is supported by current incidents, claims, complaints, near misses that are recorded in other risk management reports (e.g., incident reports). However, this does not happen in every directorate. One risk register lead complains, *"sometimes there is no clear indication of why something happened..."*, while another interviewee from a directorate claims *"we primarily use the trends to identify risks."* From the interviews with the C.G.S.U., there is an agreement that only some directorates use the incidents to identify risks.

Further, the directorates decide what to include in the risk register. A risk register lead said, *"You have to decide the cut-off level which is to an extent arbitrary."* Each directorate faces many risks; to record them all in the risk register is a highly demanding and doubtfully valuable task. However, to exclude some risks might be dangerous. The decision of what to include or not is made by either the risk register lead (depending on his/her position in the hierarchy) or by the clinical director or any other member of the directorate's management who deals with the risk register.

Finally, when a risk is identified there is no standard way to describe it in the risk registers. Every directorate may describe the risk in a different way; some describe the problem; others the cause of the problem; others the effect of a problem. *"There is no standard risk description. It depends on personal judgment; sometimes they put too many things."*, commented one facilitator. While another facilitator said, *"...depends very much on how much we either pushed the lead to describe or how descriptive the lead is."* Even the facilitators who overview the development of the risk registers do not have a standard way to describe risks, as one member of the clinical governance support team observes, *"Each facilitator has own way of writing the RR."*

Risk assessment: There are different views in scoring.

The facilitators do not believe they need clinical knowledge in order to support the directorates. They believe that risk should be judged based on the big picture of the organisation, i.e., what happens in the whole organisation. In view of this, a facilitator said, *"The directorates don't always have a high-level view of the risks that's why they score high".*

In contrast, the directorates in the Trust sometimes question the capability of the facilitators of the C.G.S.U. to assess their risks due to lack of understanding of what happens within a specific area, especially when dealing with clinical directorates. An interviewee from a clinical directorate wondered, *"How could they know how significant a risk is?"* A similar remark came from another clinical directorate *"C.G.S.U. doesn't always understand why a high score, we have to explain."* Moreover, one comment from a clinical directorate, *"Unfortunately it's very difficult to quantify exactly how much likely, more than likely, you've got those definitions if you want to score high. ... what I don't agree is sometimes we got our risks underscored and somebody is changing the scores without communicating to us. I think the scoring is a problem with the risk register."* shows the difficulties in scoring and the communication gap that accentuates these difficulties. However, sometimes in the clinical areas the focus is on clinical rather than business risks. One facilitator commented, *"...only clinical-based scoring. A risk with a significant business impact might be ignored if it doesn't have clinical impact."* Finally, the corporate directorates and facilitators agree that the existing risk assessment matrix (Appendix C) that is used as guidance when scoring a risk cannot be used to assess business risks.

Risk treatment, in general, is not structured.

There is no systematic approach towards treating a risk either as significant or not. One facilitator comments, *"The treatment is weak"*, while another adds, *"Sometimes they believe that when they put it in the risk register it will miraculously solve it. Not for the risk register lead but for people outside that's how they receive it."* Regarding "not significant" risks based on one interviewee from a directorate, *"We deal with low risks by local changes in systems, processes, and local purchases. We just have to accept some risks."* In general, there is no unanimous approach in risk treatment. It *"depends on the skills and*

experience of the risk register lead" as stated by a member of the C.G.S.U. Even in the collaboration between the management of clinical and corporate directorates and the risk register lead in order to agree on an action towards a risk "*there could be a leak...*" as claimed by one facilitator.

As already mentioned, the directorate of healthcare governance believes that the other directorates do not develop business cases as they ought to, in order for a significant risk to be treated. However, some directorates state they certainly develop business cases, as one interviewee from a directorate stated, "*there is always an action plan*". In any case, clinical and corporate directorates seem to face difficulty in developing the business case that will support managing their risks. Relevant quotes from the interviews with members of the C.G.S.U. are, "*I think if they want to do something with the risk register the only way to do that is to write a business case. We try to encourage business cases, but people are quite negative towards that, because a lot of business cases are just getting thrown out.*"; "*...they have difficulty to assess the impact and financial resources needed to solve it. Often, they don't know how to do a business case.*"

Risk review: Risk registers are not "live" documents.

The information in the risk registers is not updated in-between the risk register reviews. A facilitator stated, "*...but we might not have the time to go check upon them, if they have introduced the changes. From quarter to quarter, you have no idea of what is happening in that quarter. ... If the directorates had someone to tell them 'how can we help' it would be more likely to do something than when we go and say 'you need to do that'; it would be like they feel that they get the support all the time and not just when we go to do the review.*" The risk registers should be live documents, not just a static snapshot. One facilitator said, "*A lot [referring to directorates] just wait until the quarterly update to think about the risks that are happening. It should be a working document rather than just a spreadsheet but they have to pay a full timer to do it.*" However, the management of the risk registers is considered as a merely bureaucratic process. The process of updating and maintaining the risk register might be quite time-consuming, as the document is lengthy and unstructured. Even though there are specific headings, it might become too descriptive without highlighting crucial information. The clinical and corporate directorates lack the resources (time and personnel) to write down everything new

that occurs. *"I find it a quite cumbersome document to have to update and if we spend the risk part of the directorate meeting updating the risk register we will never do anything else."*, said one risk register lead. Another risk register lead observed, *"I think that [for] many of these processes there isn't the administrative support in place to actually run it in a way that it would be effective."* and *"... one of the suppressive things about it is that we put all this effort and energy into identifying the risk and actions but this doesn't necessarily lead to them being resolved, managed, reduced."* Some directorates take notes on risks that occur or are detected in-between the review periods but do not update the risk register until the time of review. Other directorates discuss or try to identify risks only at the time of the review.

Lessons learned is not a formalized and general practice.

The Trust's already established infrastructure for learning includes (a) the existence of the directorate of healthcare governance and (b) the implementation of a Trust-wide risk management database that aggregates the incidents, complaints, claims, identified risks and action plans.

In practice, one directorate produces a newsletter, called "Risky Business" that includes lessons learned. In several reports (i.e., quarterly risk management and clinical governance reports) lessons learned are stated. Moreover, the directorate of healthcare governance in reflective sessions and other meetings discusses what went wrong. However, the significance of communicating what is learned, within the limits of confidentiality and patient identification, is not clearly embedded in the organisation's culture. The management of healthcare governance stated, *"Lessons learned is not a formal practice for risk management for the directorates."* and an interviewee involved in publishing the newsletter "Risky Business" observed that there is *"a lot of reinventing the wheel..."*

Knowledge exists in different levels of the organisation.

From the management of healthcare governance comes the quote *"Knowledge is not the problem."*

In the C.G.S.U., each facilitator has a different level of knowledge. Not all facilitators know the whole cycle of risk management, like risk management planning or even decisions about risks.

Similarly, in the other directorates, knowledge depends on the person in charge (profession, expertise, personality, personal interest, seniority) and their involvement in the directorate. It should be noted that, not all risk register leads have sufficient knowledge especially for decision making on risk management issues. An interviewee from the directorates commented on who is more knowledgeable, *"Yes, it would be the people who work with the greatest risks."* On this topic, a facilitator said, *"Nurses and matrons are more educated about what goes on in the directorate as a whole, whereas doctors and clinical directors might know the risks involved in medics."*

Trust-wide communication: Inter-directorate.

Within the organisation, there are risks that occur in one directorate but affect other directorates, risks that might occur in other directorates in the future (especially significant ones), similar risks among different directorates that indicate a wider category of risk, and frequently occurring risks. It becomes obvious that directorates should work together, in order to achieve Trust-wide objectives of risk management. One informant from a directorate argued, *"I've got the risk register here but the question is where it goes from here. Some directorates, in case of a problem, communicate with other directorates via their clinical directors. Others believe it's the C.G.S.U. that has to communicate cross-functional risks."* Similarly, from the interviews with the C.G.S.U., *"As far as cross-functional risks are concerned it's up to the risk register lead to communicate them to the other directorates."*

For the directorate of healthcare governance, generally, communication depends on the leadership of the risk register lead.

Some directorates, in case of a problem, communicate with other directorates through their clinical directors. Existing channels of communication between directorates based on their day-to-day interaction, i.e., directorates that already communicate, facilitate the required collaboration on risk management issues. From

an interview with the directorates, *"There were channels of communication before the risk registers; the risk registers have not created new ones."* Furthermore, some directorates invite other directorates to their clinical governance meetings. Other directorates wait for the C.G.S.U. to communicate their risks to the directorates involved.

From the interviews with the C.G.S.U., *"There needs to be integration among various areas. There needs collaboration between the risk register leads, to analyse the risk register more closely and identify same risks in a systematic way and then push the lead to collaborate to manage them (i.e., the same risks) as well."*

Trust-wide communication: The C.G.S.U. and the directorates.

Risk management requires constant and uninterrupted flow of information and knowledge. However, communication between the C.G.S.U. and the directorates is sometimes affected by existing relationships. In the interviews with the directorates, it is quite obvious that when the risk register lead deals with a facilitator who s/he knew from a previous position in the Trust, or with whom s/he has collaborated in another project, the degree of collaboration between the two parts is high and the risk register of the directorate is well developed.

The C.G.S.U. has to communicate to directorates everything that might be of their concern. In turn, the directorates should reveal to the C.G.S.U. all their risk management issues. The management of healthcare governance commented, *"Dedication on behalf of the directorates and support on behalf of the C.G.S.U. is needed."* A comment from the directorates is,"... *normally, by the time we receive it [feedback on a risk] from that source [C.G.S.U.] we already know [from] our own professional network."* In fact, people in the directorates need incentives, tangible benefits, feedback on what they report and a "place" in the decision making process in order to participate actively in risk management (and consequently implement the risk management policy and procedures). From an interview with an experienced facilitator, *"They [the directorates] want to know where they are going. I tell them that they have to fill the forms otherwise the Trust won't know about these risks and we can't act on things we don't know about."* Another facilitator argued, *"Once the directorates see that the process works they'll be more encouraged."*

People from the directorates on their communication with the C.G.S.U. comment among others, *"Scores are changed without telling us."*; *"Feedback comes in the form of yes or no, in case of funding required."*; *"Occasionally we have operational difficulty of how we handle cases but we work closely with the C.G.S.U."*

Trust-wide communication: Intra-directorate.

Communication inside each directorate depends on the relationships of people and the culture imposed by the management team. One facilitator observed, *"In decision-making, the identification of a specific action comes in agreement with the governors of the directorate. However there could be a leak in the communication between the lead and the management team [if different]"*. In meetings related to risk management, e.g., clinical governance meetings, there is no uniformity of risk awareness of risk knowledge. People in the directorates believe that, in open and informal meetings, people tend to participate more actively. In one interview this is stated clearly, *"these meetings [clinical governance meetings] have to be informal and open for people to participate."*

Trust-wide communication: Inside the healthcare governance directorate.

The management of the C.G.S.U. desires to encourage verbal communication that might increase the flow of information regarding Trust-wide risks. Further, there is no documentation of meetings in the C.G.S.U.

Finally, it is the head of the C.G.S.U., who informs the facilitators, in weekly meetings, regarding new guidelines. From an interview with the C.G.S.U. comes a request, *"Could be more standardised cause there is the risk that they [the facilitators and audit assistants] are not well or timely informed."*

4.4 The Logic-based Stream of Analysis

In this section, a relevant system with reference to the situation considered problematic, i.e., management of knowledge in risk management, is defined and used further for comparison with perceived reality and the formulation of the proposed framework (see also Figure 4-1. Process of Data Analysis).

More specifically, the relevant system is developed based on the initial desire of the management of the organisation under study to support the management of the risk registers with knowledge management and the subsequent revelation of key issues in the implementation of risk management in the organisation, as presented in section 4.3, the requirements from the risk management processes (i.e., what is needed for each process to be successfully carried out), and issues arising from risk management and knowledge management literature. Further, based on the proposed framework, changes are outlined and assessed in terms of "systemic desirability" and "cultural feasibility".

4.4.1 Risk Management Requirements

This paragraph outlines the "why" of the proposed framework, i.e., the needs of risk management that have to be met. As illustrated in Figure 4-3, these needs are derived by: (a) The description of the risk management processes in the risk management policy and procedures (NHS Trust Directorate of Corporate Services 2003) of the organisation under study, that is how risk management processes should be carried out; (b) the risk management issues described in paragraph 4.3, as revealed by the collected evidence, i.e. the issues raised after exploring how risk management processes are actually carried out; and (c) relevant arguments from the risk management literature described in section 2.3.1 and outlined following in this sub-section.

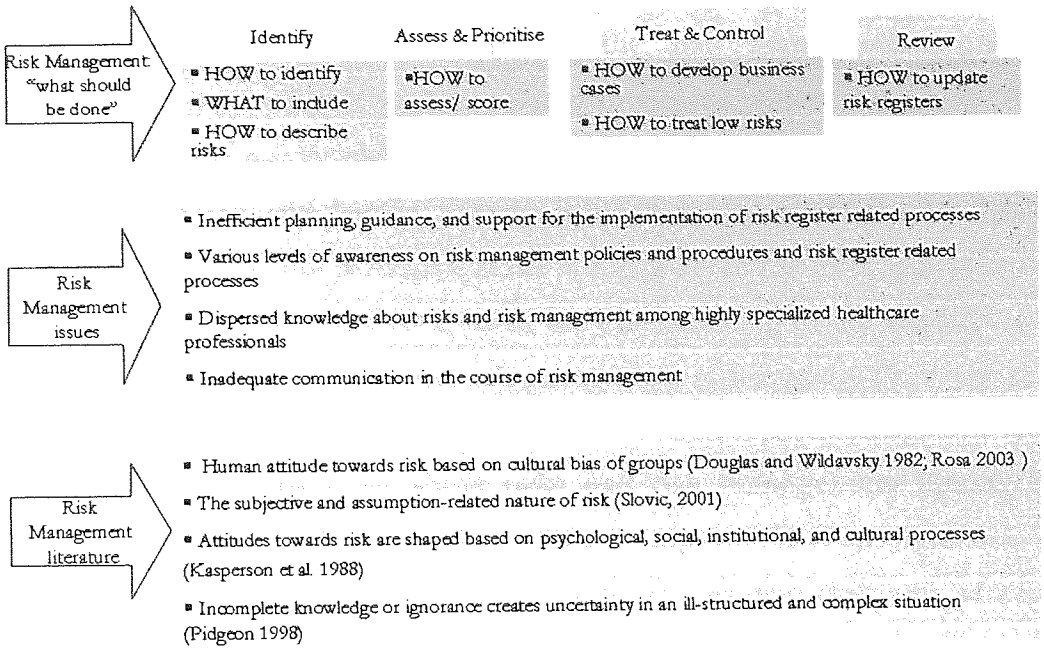


Figure 4-3. Risk Management Requirements

The **problematic situation**, based on issues described in section 4.3 can be summarised, as follows:

- **Inefficient planning, guidance, and support for the implementation of risk register related processes.** There is limited standardisation, guidance and training regarding the implementation of the risk management policy and procedures. The description of the risk management processes seems too generic to the "users", i.e., people from the directorates involved in the risk registers. As a result, the wording in the risk register is not standardised; the "*cut-off level*", i.e., what to be reported in the risk register, depends highly on the judgement of the risk register lead, the process of risk identification is "*erratic*", while existing artefacts (e.g., claim, complaint, incident reports) could demonstrate trends related to the existence of risks; there is no formal procedure for giving feedback to directorates on their risks; and the person in charge of the risk register (both from the C.G.S.U. and directorates) controls the quality of the document. Further, not everyone has access to the Trust intranet and the risk registers or even the time availability to access the Trust intranet and the risk registers. Concluding, the structures to support the implementation of the risk management policy and procedures are not formalised.

- **Various levels of awareness on the risk management policy and procedures and risk register related processes within the Trust.** There are limited or no incentives to people to participate in the course of risk management and limited training sessions for everyone in the Trust. The directorates do not participate in the planning of the risk management strategy or policy and procedures. As a result, the understanding of the importance of the implementation of a vigorous risk management system in the Trust is weak.

- **Dispersed knowledge about risks and risk management among highly specialized healthcare professionals.** As expected in every organisation, each group of professionals possesses knowledge regarding their area of expertise. Namely, as shown in Figure 4-4, the directorates possess experience to identify, assess, and treat the risks in their area ("directorate specific" and "operational area specific" knowledge). On the other hand, the C.G.S.U. provides knowledge from the environment, e.g., guidelines and standards, ("risk management specific" knowledge) and knowledge regarding risks all over the Trust gained while communicating with the directorates ("Trust-wide" knowledge). Indeed, in this specific organisation, the directorates have adequate knowledge on risks in their area (operational area specific knowledge and directorate specific knowledge), while the members of the C.G.S.U. seem to have knowledge about the risk management policies and procedures and knowledge about risks throughout the Trust to support the directorates (risk management specific knowledge and Trust-wide knowledge). However, knowledge about risks and knowledge about managing risks are not systematically collated. As a result, the organisation cannot achieve an integrated approach to risk management.

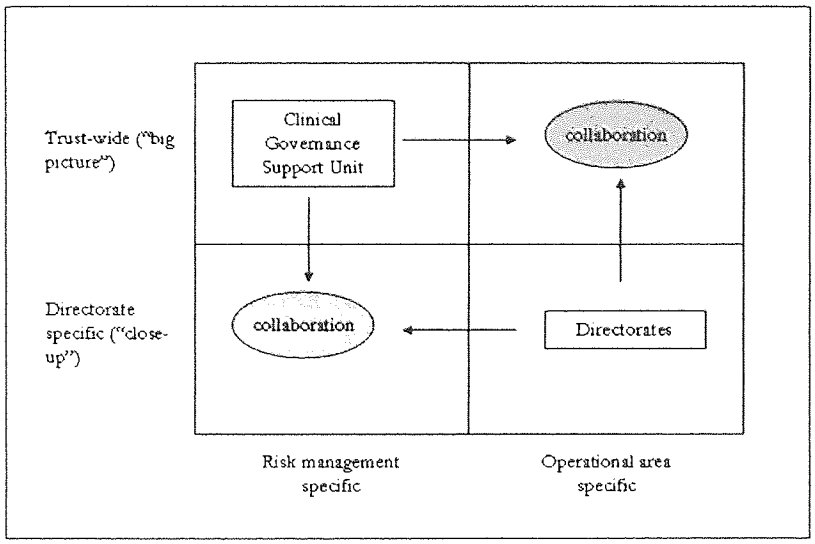


Figure 4-4. Types of risk management related knowledge

Inadequate communication in the course of risk management throughout the whole Trust. Risk management requires communication (a) within directorates (intra-directorate communication) and (b) among directorates (inter-directorate communication) either between clinical and corporate directorates and the C.G.S.U. or between different corporate or clinical directorates that might share a risk (cross-functional risks), face the same risk (similar risks), or simply be sensitive to the same categories of risks (significant and frequent risks). The daily operations of the organisation impose certain channels of communication. As already mentioned in Chapter 2 (subsection 2.2.8), the nature of medical knowledge calls for collaboration between groups of highly specialised professionals and levels in the hierarchy of healthcare organisations (Nicolini et al. 2008). Further, some groups of professionals are not traditionally open to sharing their knowledge particularly concerning an adverse event, in fear of being blamed. In addition to this, the presence of blame culture among different groups of professionals, as stated in interviews, does not facilitate communication. Finally, the absence of a "common language" between different groups of professionals impedes knowledge transfer. As a result, knowledge about risks and risk management that, as mentioned above, resides in different groups of professionals, remains unexploited. However, the members of the C.G.S.U. circulate knowledge they capture during their communication with the directorates, within the Trust, as shown in the quotes in Figure 4-5.

"When you identify your risk you have to meet with somebody who's doing well, it's the information sharing that is the vehicle.'

"We transfer solutions from directorates that we think are applicable to other directorates. We can't help them with the action plan."

Figure 4-5. From interviews with the C.G.S.U.

The issues raised by the stakeholders and artefacts of the system under study in combination with the initial aspiration of the management of the directorate of healthcare governance (i.e., a knowledge management initiative for risk management) reveal the need to support the risk management policies and procedures by using knowledge management tools and techniques, in order to improve the implementation of the risk management strategy in the Trust. In support to this, the literature on risk management (sub-section 2.3.1) accentuates:

- The role of "cultural bias", as the attitudes and beliefs shared by a group in the human attitude towards risk (Douglas and Wildavsky 1982). In essence, what is perceived as risk and how it is perceived depends on the viewpoint from which it is regarded (Douglas and Wildavsky 1982; Rosa 2003).

- The subjective and assumption-related nature of risk, where it is conceptualised and assessed as a game with rules that are developed based on the context of a specific situation (Slovic 2001).

- The role of psychological, social, institutional, and cultural processes when attitudes towards risk are shaped (Kasperson et al. 1988).

- The belief that incomplete knowledge or ignorance creates uncertainty in an ill-structured and complex situation (Pidgeon 1998).

4.4.2 Knowledge Management Requirements

This paragraph presents the "what" of the proposed framework, i.e. the way(s) knowledge management can support the risk management requirements described above. In essence, the knowledge requirements from the situation under study are identified and combined with general knowledge management requirements based on the relevant literature.

First, the "nodes" from the transcripts referring to the risk management processes; the documentation of the risk management processes (NHS Trust Directorate of Corporate Services 2003); and the notes from the observation of how a risk register is currently managed have been read through quite systematically with sole aim to identify the information and knowledge required for the key risk management processes, i.e. identify risk, assess risk, treat risk, review risk. At this point, the researcher has actually gone through an existing "risk register" in order. The distinction between "information" and "knowledge" is based on the respective definitions in the Literature Review (section 2.2). As a result, knowledge and information required for the risk management processes are presented in Table 4-2. In general, risk management involves knowledge of the organisation and its idiosyncrasies, but also knowledge of the tools and standards of risk management per se.

In particular, *risk identification* requires close collaboration and exchange of experience to manage the existing risk-related information. In essence, the C.G.S.U. contributes a general view of the environment of risk management (e.g., how the risks of one directorate might affect the operation of another) and the elements that indicate the existence of a risk for the directorate, such as trends of existing problems, reports of incidents, clinical guidelines that have to be introduced, etc. On the other hand, the directorates have a clear and coherent picture of their internal affairs.

Likewise, *risk assessment* demands powerful teamwork between the two groups, i.e., directorates and C.G.S.U., to achieve a high degree of objectivity while scoring the

potential risks. Even though the members of the directorates have the required expertise to evaluate the likelihood and severity of a risk, the detached glance of the C.G.S.U., that takes into consideration what happens Trust-wide, contributes to the desired elimination of subjectivity.

On the other hand, *risk treatment* is mostly a directorate concern, while the C.G.S.U. can offer the experience gained from the Trust-wide risk management (e.g., how other directorates dealt with a similar situation, what relevant projects, or funds might be in place, what risks affect more than one directorate etc.).

Finally, the *risk review that is done when the directorates review their risk registers (i.e., every quarter)* requires information and knowledge that reside in the directorate. At this point, the role of the C.G.S.U. is merely administrative. In other words, they have to confirm that information presented in the risk register is updated in order to proceed to further actions.

Moreover, the management of risk registers requires knowledge related to existing risk management policies and procedures, i.e., how to describe risks, what to include in the risk register, how to develop business cases.

Apart from the development and maintenance of individual risk registers that aim to react to adverse events, the organisation should also plan for proactive management of risks. So far, information from the directorates' risk registers, such as significant and frequent-significant risks, collates in the Trust risk register. This information is presented to the committees that decide upon the funding required to manage existing risks and, in cases, prevent them from happening again.

Regarding the requirements in terms of knowledge and information for the risk management processes, two critical notes should be made:

1. The "contributor" of required knowledge, in essence the "owner" of it, has to make this knowledge accessible to the whole range of people involved in the management of the risk registers at every stage, i.e. every process in order to implement policies and procedures of reactive and proactive risk management.

For instance, knowledge regarding the *daily practice in directorates* has to be communicated among people involved in risk identification, as it might raise issues that might subsequently lead to the identification of a new risk. Therefore, it is argued that for the risk management processes to be supported by existing knowledge, an interaction among the stakeholders of the risk registers has to take place.

2. Knowledge required at an early stage of the risk management cycle is usually used at later stages as well. That is to say, the allocation of knowledge into risk management processes does not imply that there are "barriers" between the processes; on the contrary there is continuity. Risk related knowledge flows throughout the whole risk management or risk register management cycle. For example, the *daily practice in directorates* (in risk identification) influences the *likelihood of a risk to occur* (in risk assessment). It is the "how to" type of knowledge, e.g. *how to describe risks, how to use the risk assessment matrix, how to develop business cases, how to follow up and complete an action plan, how to update the risk register*, that seem more "fragmented" types of knowledge. Regarding this, it is argued that risk related knowledge evolves throughout the risk management cycle.

	Required knowledge of	Contributor of required knowledge	Required information of
Risk Identification	how the directorates operate	D	aims and objectives
	daily practice in directorates	D	
	relationships among directorates	D, CGSU	operations of the directorate organizational structures
	interpersonal relationships	D	
	interdependence among directorates	D, CGSU	organizational structures
	collaboration among directorates	D	operations of the directorate
	issues reported	D, CGSU	incidents, claims, complaints & trends risk issues of other directorates (cross-functional and frequent risks): location, cause
	what problems the directorates face (experience)	D	
	compatibility with standards	D	clinical guidelines new standards for Directorates
	how the Trust operates	D, CGSU	aims and objectives organisational structures
	daily practice in the Trust	D, CGSU	
	how to describe risks	CGSU	risk management policies and procedures
	what to include in the risk register	CGSU	risk management policies and procedures
(proactive risk management)	lessons learned	CGSU	risk issues of other risks (cross functional, similar, frequent risks): cause, mistakes, success
	themes	CGSU	risk issues of other risks (cross functional, similar, frequent risks): cause
Risk Assessment	the likelihood of a risk to occur	D, CGSU	incidents, claims, complaints risk issues of other directorates (cross-functional and frequent risks): cause, effect existing controls in place
	the consequences if a risk occurs	D, CGSU	operations of the directorate risk issues of other directorates (similar risks): effect, lessons learned/new policy rules existing controls in place
	how to use the "risk assessment matrix"	CGSU	risk management policies and procedures
Risk Treatment	the appropriate treatment	D	operations of the directorate
		CGSU	risk issues of other directorates (cross-functional and similar risks): cause, people, plan
	who has the expertise for treatment	D	previous involvement with relevant issues
	availability of resources	D	directorate workload
	how to develop business cases	CGSU	risk management policies and procedures
Risk Review	how to follow up and complete an action plan	D	risk issues of previous risks: action plan
	how to update the risk register	CGSU	risk management policies and procedures

Table 4-2. Knowledge and Information in the Risk Management Cycle (D: directorate, C.G.S.U.: Clinical Governance Support Unit)

Further, information regarding a risk, also described in Table 4-2 as "risk issues of other directorates", is depicted in the following diagram (Figure 4-6). This information is either documented on the risk registers, the quarterly risk management and clinical governance reports and reports that aggregate Trust-wide risks, or resides in the minds of people (i.e., who has identified a risk, who is the expert in a risk). For example, when information about risk issues on other directorates is needed, based on Table 4-2, Figure 4-6 includes the details that can be retrieved. It is noteworthy that, the "attributes" cause, effect, location, people, and action plan refer to the reactive side of risk management, while lessons learned refer to the proactive one.

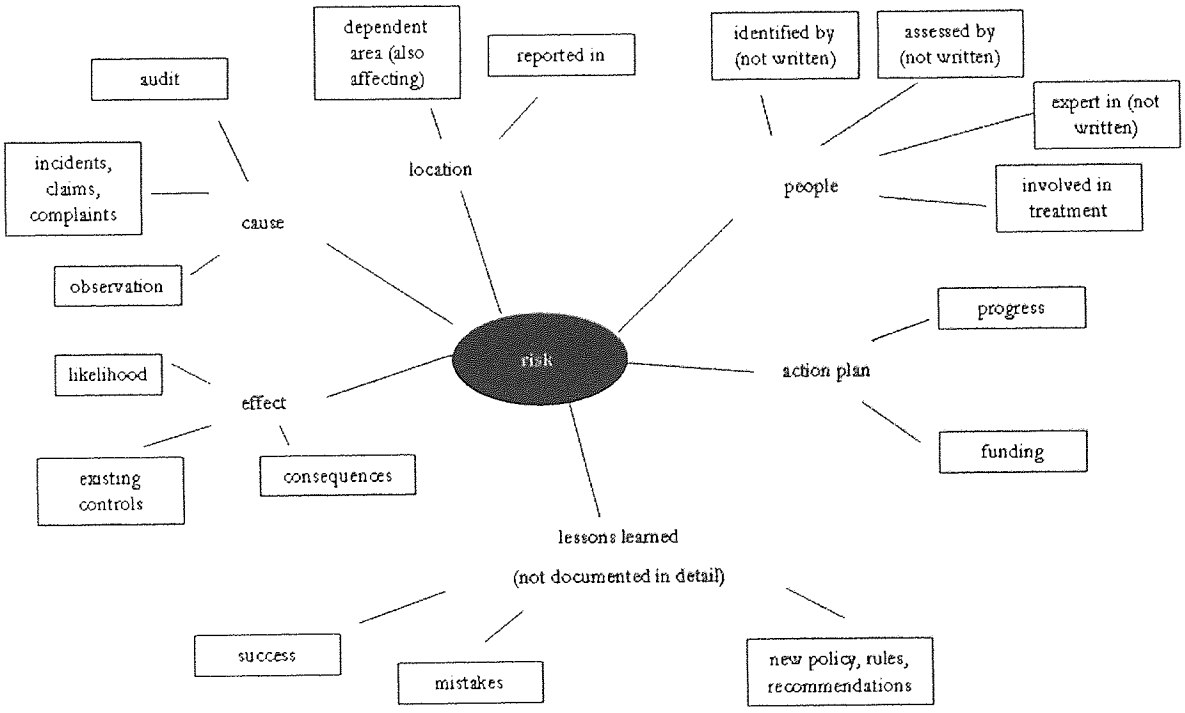


Figure 4-6. Risk-related information

In this study, it is argued that, in order to facilitate the identification of risk, increase the objectivity of risk assessment and the efficiency of treatment, and systematically prevent significant risks, risk related knowledge should (a) be diffused to all interested parties at the right time, (b) be available at the right place, (c) be adaptable to the required context in order to be exploited according to the needs of the Trust, and (d) be obtained at the lowest possible cost (Skyrme 1999; Wiig et al. 1997).

4.4.3 Relevant Model

As already discussed, the current research has started to explore risk management in an N.H.S. Trust from a knowledge-based perspective. Analysis of the evidence collected throughout the study, as summarised in sub-sections 4.4.1 and 4.4.2, combined with the relative topics covered in the risk management and knowledge management literature, also summarised in sub-sections 4.4.1 and 4.4.2, reveals knowledge-related issues from the actual implementation of the risk management strategy regarding the risk registers. In essence, a plethora of risk and risk management related knowledge exists in the Trust; however, it is not accessible when and where needed. In other words, risk and risk management related knowledge does not circulate as needed within the organisation.

In view of that, as presented in Chapter 2 (Literature Review), communication in the context of risk management is essential and the standard for risk management that is followed by the organisation under study, i.e. the AS/NZS 4360 (1999), dictates the development of a Risk Management Communication Strategy that outlines (a) the aims and objectives for the communication of risk management, (b) the key messages to be communicated, and (c) the participants in the process of communication.

Based on the aforementioned issue of inefficient communication of risk and risk management related knowledge for the management of the risk registers and the emphasis on a Risk Management Communication Strategy in the literature, this study proposes a framework to support the requirement for communication of risk and risk management related knowledge within the Trust and defines the mechanisms to enable and support the proposed communication. Following the S.S.M. terminology, as outlined in Checkland and Scholes (1999), the following root definition describes in more detail the "purposeful human activity system" that is considered relevant to the problem situation analysed in this study. The root definition is not presented here as a strong "methodological tool"; rather it consolidates the original aim of this study with the issues revealed from the data analysis.

Root Definition

"A system, owned by the Trust and operated by the directorate of healthcare governance and the directorates, to support and coordinate the communication of knowledge about risks and risk management, in order to improve the implementation of the risk management policy and procedures and, consequently, risk management strategy. The "system" will be a framework that defines "target audiences" that have to communicate and "key messages" to be communicated (AS/NZS 4360 1999) and will further outline the appropriate method(s) to increase availability of risk and risk management related knowledge in the Trust."

"Target audiences":

In the directorates, there are three groups of audience: the management of the directorate (DMgt), the risk register lead (RRL) and the rest of the staff (St). In the directorate of healthcare governance, there are two groups of audience: the management of the directorate (HCGMgt) and the Clinical Governance Support Unit (C.G.S.U.).

"Key messages":

Knowledge from different sources should be made accessible in the organisation, in order to eliminate ineffective and lengthy meetings, where people might be unwilling to share what they know, or participants might negotiate on different grounds.

The messages to be communicated relate to knowledge that is required for the management of risks. Based on the main categories of knowledge, as shown in Figure 4-4, the messages include: (a) risk management related knowledge and (b) operational area related knowledge, as well as (c) Trust-wide knowledge and (d) directorate specific knowledge.

In addition to communication of risk and risk management related knowledge, relevant information, that supports "the truths, beliefs, perspectives and concepts,

judgments, and expectations, methodologies and know-how which is possessed by humans [in the directorates and the directorate of healthcare governance]..." (Wiig 1999), has to be accessible, as well.

"Method(s)":

The definition of ways in which knowledge communication can be facilitated depends on the type and ownership of required knowledge. The typologies used are: (a) directorate specific and operational area specific knowledge (discussed in 4.4.1 and depicted in Figure 4-4), (b) risk management specific and Trust-wide knowledge (discussed in 4.4.1 and depicted in Figure 4-4), (c) tacit and explicit knowledge (Nonaka and Takeuchi 1995; Nonaka et al. 2001) (discussed in section 2.2). Further, the "owner" of knowledge can be a person or an artefact (e.g., a report). Especially, communication among different "owners" of knowledge, as persons, depends on existing relationships in the Trust and the level of a "non blame" culture in the directorates or groups of health professionals (e.g., doctors, nurses), as described above. Methods for risk and risk management related knowledge communication are analysed in two stages:

a) Identification of the parties that have to communicate (directorates and C.G.S.U.) combined with the type of knowledge dispersed within the Trust ("directorate specific" or "trust-wide"; "operational area specific" or "risk management specific"; tacit or explicit) and the current owner(s) of this knowledge. This combination will lead to the Relevant Model.

b) Proposal of means that could facilitate the desired communication of risk and risk management related knowledge, after taking into account current way(s) of communication. More specifically, the Relevant Model will be combined with the perceived real situation under study in order to outline possible actions for improvement of communication of risk related knowledge. The final framework will consider whether the proposed actions are "systemically desirable" and "culturally feasible" (Checkland and Scholes 1999).

Taking into account the requirements for risk management for the organisation under study, the Relevant Model in Table 4-3 illustrates the requirements for risk management, in terms of communication. In essence, Table 4-2 is enhanced with the required type of communication, i.e., within a directorate ("intra-directorate"), between directorates and the C.G.S.U. ("directorate-C.G.S.U."), or among different directorates ("inter-directorate"). Moreover, the typology of risk related knowledge, presented in Figure 4-4, is added as it shows the type of knowledge contributed by each part of the communication channel (directorates, C.G.S.U.).

In the Relevant Model, each risk management process is linked with required knowledge provided by either the directorates, or the C.G.S.U., or both, and required information that supports the "truths, beliefs, perspectives and concepts, judgments, and expectations" (Wiig 1999). Required knowledge is communicated through existing channels in the course of each risk management cycle. As aforementioned, directorates and the C.G.S.U. are the "experts" in their area; each type of expertise (Figure 4-4) is essential for more comprehensive risk management.

Regarding the "target audiences", each risk management process entails the direct involvement of certain individuals or teams. In the following table (Table 4-3), "RRL" refers to the Risk Register Lead, "DMgt" refers to the management team of the directorate, and "C.G.S.U." refers to the facilitator assigned to each directorate.

	Required knowledge of	Contributor of required knowledge	Required information of	Required communication type	Target audience(s)	Case specific type of knowledge	
Risk Identification (proactive risk management)	how the directorates operate	D	aims and objectives	intradirectorate	St	directorate specific	operational area specific
	daily practice in directorates	D		intradirectorate	St	directorate specific	operational area specific
	relationships among directorates	D, CGSU	operations of the directorate organizational structures	intradirectorate, directorate-CGSU	CGSU	trust-wide	operational area specific
	interpersonal relationships	D		intradirectorate, interdirectorate	St	directorate specific	operational area specific
	interdependence among directorates	D, CGSU	organizational structures	intradirectorate, interdirectorate	CGSU	trust-wide	operational area specific
	collaboration among directorates	D	operations of the directorate	intradirectorate, interdirectorate	St	trust-wide	operational area specific
	issues reported	D, CGSU	incidents, claims, complaints & trends risk issues of other directorates (cross-functional and frequent risks): location, cause	intradirectorate, directorate-CGSU	RRL	trust-wide	risk management specific
	what problems the directorates face (experience)	D		intradirectorate, interdirectorate	RRL	directorate specific	operational area specific
	compatibility with standards	D	clinical guidelines new standards for Directorates	interdirectorate, directorate-CGSU	DMgt, RRL	directorate specific	risk management specific
	how the Trust operates	D, CGSU	aims and objectives organisational structures	directorate-CGSU	DMgt, RRL	trust-wide	operational area specific
	daily practice in the Trust	D, CGSU		intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	operational area specific
	how to describe risks	CGSU	risk management policies and procedures	directorate-CGSU	RRL	trust-wide	risk management specific
	what to include in the risk register	CGSU	risk management policies and procedures	directorate-CGSU	RRL	trust-wide	risk management specific
	lessons learned	CGSU	risk issues of other risks (cross functional, similar, frequent risks): cause, mistakes, success	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	operational area specific
	themes	CGSU	risk issues of other risks (cross functional, similar, frequent risks): cause	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	risk management specific
Risk Assessment	the likelihood of a risk to occur	D, CGSU	incidents, claims, complaints risk issues of other directorates (cross-functional and frequent risks) cause, effect existing controls in place	intradirectorate, directorate-CGSU	DMgt, RRL, CGSU	trust-wide	operational area specific
	the consequences if a risk occurs	D, CGSU	operations of the directorate risk issues of other directorates (similar risks): effect, lessons learned/new policy rules existing controls in place	intradirectorate, directorate-CGSU	DMgt, RRL, CGSU	trust-wide	operational area specific
	how to use the 'risk assessment matrix'	CGSU	risk management policies and procedures	directorate-CGSU	RRL	directorate specific	risk management specific
Risk Treatment	the appropriate treatment	D	operations of the directorate	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	directorate specific	operational area specific
		CGSU	risk issues of other directorates (cross-functional and similar risks): cause, people, plan			trust-wide	operational area specific
	who has the expertise for treatment	D	previous involvement with relevant issues	intradirectorate	RRL	directorate specific	operational area specific
	availability of resources	D	directorate workload	intradirectorate	RRL	directorate specific	operational area specific
	how to develop business cases	CGSU	risk management policies and procedures	directorate-CGSU	RRL	trust-wide	risk management specific
Risk Review	how to follow up and complete an action plan	D	risk issues of previous risks: action plan	intradirectorate, directorate-CGSU	CGSU	directorate specific	operational area specific
	how to update the risk register	CGSU	risk management policies and procedures	directorate-CGSU	RRL	trust-wide	risk management specific

that sense, knowledge embedded in documents is considered explicit, while knowledge that resides in the minds of people and is not in a written format is considered tacit. It can be seen from the following table (Table 4-4. Comparison with Perceived RealityTable 4-4) that some categories of knowledge are characterised as both tacit and explicit, as the researcher identified a tacit and an explicit side.

	Required knowledge of	Required information of	Real Situation	Required communication type	Real Situation	Case specific type of knowledge		Typology of individual's knowledge (Nonaka and Takeuchi, 1995; Nonaka et al 2001)
Risk Identification (proactive risk management)	how the directorates operate	aims and objectives	The degree of knowledge depends on the level in the hierarchy and the leadership of the directorate's management. The aims and objectives of directorates are presented in the induction session	intradirectorate	*Communication between directorates and CGSU* is affected by existing relationships. In turn, people in directorates do not feel intrigued to contribute what they know regarding a risk. The degree of support provided to the directorates depends on the facilitator	directorate specific	operational area specific	explicit
	daily practice in directorates		The directorates have experience. The culture of the directorate affects the degree of knowledge at every level of the staff	intradirectorate	*Intradirectorate communication* depends on existing relationships and the directorate's culture. Existing culture affects how clinical government meeetings are held, e.g. is sharing encouraged? Do people admit/ report mistakes?	directorate specific	operational area specific	tacit
	relationships among directorates	operations of the directorate organizational structures	The directorates have experience. The culture of the directorate affects the degree of knowledge at every level of the staff	intradirectorate, directorate-CGSU	No structured *interdirectorate communication* for risk management. Communication is based on existing channels of collaboration or on the initiative of either the risk register lead or the facilitator from the CGSU.	trust-wide	operational area specific	explicit
	interpersonal relationships			intradirectorate, interdirectorate	*Communication in the directorate of healthcare governance* is quite formal. The management of the directorate healthcare governance has open door and teamwork oriented policy.	directorate specific	operational area specific	tacit
	interdependence among directorates	organizational structures	Knowledge depends on the person in charge and their involvement in the directorate	intradirectorate, interdirectorate		trust-wide	operational area specific	explicit
	collaboration among directorates	operations of the directorate	Knowledge depends on the person in charge and their involvement in the directorate, i.e. whether they interact with other directorates	intradirectorate, interdirectorate		trust-wide	operational area specific	tacit
	issues reported	incidents, claims, complaints & trends risk issues of other directorates (cross-functional and frequent risks), location, cause	It is not common practice to base risk identification on issues reported, as the accessibility to information about incidents, claims, complaints & trends is limited. The access rights on the risk registers and the time to access relevant information are limited	intradirectorate, directorate-CGSU		trust-wide	risk management specific	explicit
	what problems the directorates face (experience)		Knowledge depends on the person in charge and their involvement in the directorate	intradirectorate, interdirectorate		directorate specific	operational area specific	tacit
	compatibility with standards	clinical guidelines new standards for Directorates	Directorates have knowledge of standards and guidelines. Moreover, the CGSU communicates the results of audits and new standards	interdirectorate, directorate-CGSU		directorate specific	risk management specific	explicit
	how the Trust operates	aims and objectives organisational structures	Knowledge depends on the person in charge and their involvement in the directorate. Similarly, facilitators' knowledge depends on the person	directorate-CGSU		trust-wide	operational area specific	explicit
	daily practice in the Trust		Knowledge depends on the person in charge and their involvement in the directorate, i.e. whether they interact with other directorates	intradirectorate, directorate-CGSU, interdirectorate		trust-wide	operational area specific	tacit
	how to describe risks	risk management policies and procedures	There is no formal training. There is no standard way to describe risks	directorate-CGSU		trust-wide	risk management specific	explicit
	what to include in the risk register	risk management policies and procedures	There is no formal training. The decision of what to include in the risk register is personal. Clinical directorates tend to emphasize the clinical risks and neglect the corporate ones	directorate-CGSU		trust-wide	risk management specific	explicit
	lessons learned	risk issues of other risks (cross functional, similar, frequent risks), cause, mistakes, success	The access rights on the risk registers and the time to access relevant information are limited. Dissemination of lessons learned is not encouraged by the "blame" culture and the stereotypes of certain professions. Lessons learned are included in Clinical Governance Reports, but not disseminated in the whole Trust. In turn, people in directorates do not feel intrigued to contribute what they know regarding a risk. One directorate circulates a newsletter with Lessons Learned	intradirectorate, directorate-CGSU, interdirectorate		trust-wide	operational area specific	tacit (experiences), explicit
	themes	risk issues of other risks (Cross functional, similar, frequent risks), cause	The access rights on the risk registers and the time to access relevant information are limited. Themes are identified by the CGSU in a database. However, the results are not disseminated in the Trust	intradirectorate, directorate-CGSU, interdirectorate		trust-wide	risk management specific	tacit (experience), explicit
Risk Assessment	the likelihood of a risk to occur	incidents, claims, complaints risk issues of other directorates (cross-functional and frequent risks), cause, effect existing controls in place	The access rights on the risk registers and the time to access relevant information are limited. Likelihood defined in terms of the directorate is based on the knowledge of experienced professionals. Likelihood in Trust-wide terms depends on the experience of the dedicated facilitator. The directorates believe that facilitators should possess operational-area specific knowledge in order to assess the specific situation and its constraints. The management of the directorate of healthcare governance disagrees as they see facilitators as the link between risk and risk management	intradirectorate, directorate-CGSU		trust-wide	operational area specific	tacit (personal judgement), explicit
	the consequences if a risk occurs	operations of the directorate risk issues of other directorates (similar risks), effect, lessons learned/new policy rules existing controls in place	The access rights on the risk registers and the time to access relevant information are limited. Consequences defined in terms of the directorate is based on the knowledge of experienced professionals. Consequences in Trust-wide terms depends on the experience of the dedicated facilitator. The directorates believe that facilitators should possess operational-area specific knowledge in order to assess the specific situation and its constraints. The management of the directorate of healthcare governance disagrees as they see facilitators as the link between risk and risk management	intradirectorate, directorate-CGSU		trust-wide	operational area specific	tacit (personal judgement), explicit
	how to use the 'risk assessment matrix'	risk management policies and procedures	There is no formal training. The 'risk assessment matrix' is designed based on clinical risk assessment and cannot easily be used by corporate directorates	directorate-CGSU		directorate specific	risk management specific	explicit
Risk Treatment	the appropriate treatment	operations of the directorate risk issues of other directorates (cross-functional and similar risks), cause, people, plan	The access rights on the risk registers and the time to access relevant information are limited. Further, there is no systematic approach towards treatment of 'non significant' risks	intradirectorate, directorate-CGSU, interdirectorate		trust-wide	operational area specific	
	who has the expertise for treatment	previous involvement with relevant issues	The directorates have knowledge	intradirectorate		directorate specific	operational area specific	tacit, explicit
	availability of resources	directorate workload	The directorates have knowledge	intradirectorate		directorate specific	operational area specific	explicit
	how to develop business cases	risk management policies and procedures	There is no formal training	directorate-CGSU		directorate specific	operational area specific	explicit
						trust-wide	risk management specific	explicit
Risk Review	how to follow up and complete an action plan	risk issues of previous risks action plan	The degree of knowledge depends on the level in the hierarchy and the leadership of the directorate's management. The degree of influence of the risk register lead that depends on the level in the hierarchy plays an important role. The quality improvement officer takes notes on follow-ups on risks	intradirectorate, directorate-CGSU		directorate specific	operational area specific	tacit (experience), explicit (previous risks)
	how to update the risk register	risk management policies and procedures	Facilitators have no power to enforce the update of the risk registers. Further, there is no formal training that would accentuate understanding of the importance of the risk registers. Updating the risk registers is a bureaucratic and time-consuming process, while the directorates lack the respective resources	directorate-CGSU		trust-wide	risk management specific	explicit

Table 4-4. Comparison with Perceived Reality

4.5 Proposed Framework

4.5.1 Proposed Changes

Sub-section 4.4.1 summarises the risk management requirements for the situation under study and sub-section 4.4.2 discusses the relevant knowledge management requirements, i.e. requirements in terms of risk and risk management related knowledge. Based on these requirements, a framework that enables communication of risk and risk management related knowledge within the Trust is proposed (Table 4-3. Relevant Model) and compared with the current situation (Table 4-4. Comparison with Perceived Reality).

Analysis presented so far shows that the organisation possesses risk and risk related knowledge, yet does not exploit it efficiently. The identification of required knowledge for every risk management process (sub-section 4.4.2) intended to support a more detailed knowledge-based view of the risk registers in order to investigate how this knowledge can be made accessible according to the needs of the organisation. The researcher observed that risk and risk management related knowledge that exists in several formats and places (individuals, processes, and artefacts) in the Trust:

- has to be communicated among the stakeholders of the risk register cycle.
- can evolve to support subsequent risk management processes. In essence, current knowledge has to be developed in order to fit in a risk management related situation and context.
- can be distinguished in categories in order to be exploited based on its specific characteristics.

In short, the management of the risk registers in the Trust involves a complex interaction of people and groups, within and among directorates, and between levels of the hierarchy of the organisation, in order for risk and risk management related

knowledge to flow and transform to be used in the right format, where and when needed.

As discussed in Chapter 2 (Literature Review) Nonaka and Takeuchi (1995; Nonaka et al. 2001) propose a model of knowledge conversion during a process of social interaction. The framework that is proposed in this study (Table 4-5), to cover the needs of knowledge communication in the Trust, is inspired by the concepts of knowledge creation and the relevant modes of knowledge conversion: Socialization, Externalization, Combination, and Internalization, also known as SECI, described in detail in sub-section 2.2.4. Briefly, ***socialization*** is the process of creating new tacit knowledge from existing (tacit), by sharing experiences; ***externalization*** is the process of converting tacit knowledge into explicit; ***combination*** is the process of creating new explicit knowledge by combining existing (explicit); and ***internalization*** is the process of embodying explicit knowledge into the organisation as tacit knowledge.

The conversion between tacit and explicit knowledge is not restrained to the levels where knowledge is created (individual, group of professionals, directorate). On the contrary, tacit knowledge and the subsequent conversions evolve throughout the different levels of the organisation. Based on Nonaka and Takeuchi (1995), "organizational knowledge creation is a spiral process, starting at the individual level and moving up through expanding communities of interaction, that crosses sectional, departmental, divisional, and organizational boundaries." In this particular organisation and situation (i.e., risk management), individual knowledge is powerful and influences the implementation of the existing risk management policy and procedures. However, unless different perspectives are communicated, conceptualised, and combined to create a holistic view of the risks the Trust faces, risk and risk management related knowledge remains inadequately used.

Further, as already mentioned, the "allocation" of knowledge to the risk management processes has no intention to fragment knowledge within the "boundaries" of one process. On the contrary, knowledge flows among people and certainly among processes to enhance the decisions and judgments made at every stage of the development of the risk registers.

The modes of knowledge conversion are used as the fundamental frame for the proposed changes regarding the way risk and risk management related knowledge circulates within the Trust. The proposed framework in Table 4-5 relates the required (proposed) SECI processes to risk management processes. In essence, the relevant model (Table 4-3) was compared with the real world situation in Table 4-4 and in turn Table 4-5 (Proposed Framework) is further enriched with the proposed methods to facilitate the risk management processes. The proposed methods indicate the knowledge conversion mode for the required knowledge in every risk management process and the respective changes for the conversion of this knowledge.

In ***risk identification***, the expertise of staff, namely, "daily practice in directorates", "daily practice in the Trust", "interpersonal relationships", and degree of "collaboration among directorates" can be amplified through *socialization*. In general, informal meetings within a group of professionals in one directorate (e.g., nurses of a ward) would facilitate the flow of existing knowledge. Regarding "interpersonal relationships", the risk register leads of all or related directorates and the facilitators can also participate in informal discussions. In the informal meetings or gatherings stories regarding the aforementioned knowledge (e.g., a story showing or justifying certain interpersonal relationships) could be used. Experience on "collaboration among directorates" can be enhanced by the participation of risk register leads in clinical governance meetings in other directorates, and the facilitation of joint activities of risk identification (e.g., discussion about a potential cross-functional risk) among directorates that collaborate.

Similarly, knowledge of "what problems the directorates face" can be *socialized* to enable circulation in one directorate and then *externalized* to be used in the whole Trust. The risk register leads can encourage informal meetings and introduce discussions about risks in case of informal gatherings in their directorates and observe clinical governance meetings in other directorates. As discussed in Chapter 2 (sub-section 2.2.6), practice in a community requires engagement of people in common activities that helps negotiating the meanings of groups in specific situations (Furlong and Johnson 2003). Further, Wenger (1998a) focuses, on the

role of discourse as "a reflection of an enterprise" and a "social resource for creating and developing useful statements".

In the form of an analogy, a case similar in more than one directorate can be disseminated in the whole Trust, through the intranet and a newsletter. The newsletter can be easily accessible by everyone in the organisation, even those stating that they have no time to access the Trust's intranet or no access at all to it. Formal clinical governance meetings, where such issues are discussed, should be adequately documented and stored for future use.

Further, knowledge of "issues reported" and degree of "compatibility with standards" can be *combined*. Knowledge embedded in various reports (incidents, claims, complaints) can be integrated with existing and new standards, reports from audits (clinical audits) and risk related issues from other directorates.

On the other hand, knowledge regarding formal relationships among directorates, namely, "relationships among directorates" and "interdependence among directorates", based on existing organisational structures can be communicated through *internalization*. Even though, these relationships are based on organisational structures and, in general, explicit knowledge, people in directorates might ignore those dynamics. More involving leadership would help people become more familiar with a variety of aspects of the life within a directorate, even those outside the strict boundaries of their day-to-day routine. Similarly, knowledge about "how the directorates operate" and "how the Trust operates" exists in several documents and is presented in the induction session to new employees of the Trust. Embedding what is written into everyday practice, so that indications of divergence might indicate a risk, needs *internalization*. The induction sessions and announcements of news in bulletins and the intranet can support this. Accordingly, knowledge regarding "how to describe risks" and "what to include in the risk register" should be *internalized*. Training sessions and "learning by doing" sessions for the risk register leads are required.

Finally, in proactive risk management "lessons learned" have to take a more crystallized shape (*externalization*) and be *combined* further. A consistent effort to

gather, document, and disseminate what is learned throughout the risk management cycle across the Trust is crucial for proactive risk management. Correspondingly, expertise on "themes", as patterns of risk related issues in different directorates can be *combined.* Information gathered from the directorates, judgments described in the risk registers, and experience gained in the course of risk management by both risk register leads and facilitators should be integrated to support the prevention of risks.

In ***risk assessment***, experience needed to assess the "likelihood of a risk to occur" and the "consequences if a risk occurs" should be *externalized*, while existing knowledge regarding controls in place, reported incidents, claims or complaints, and the operations of the directorate as a whole should be *combined.* Cases from risks in other directorates can be used as analogies. Further, expertise on existing controls and previous cases can offer a more informative view of a risk. Lastly, expertise related to the use of the risk assessment matrix can be *internalized.* Again, training sessions and "learning by doing" sessions for groups of risk register leads are required.

In ***risk treatment***, knowledge regarding the "appropriate treatment" can be *externalized* and then *combined.* As described above, existing cases can be used as analogies and guide the management of a risk. Furthermore, existing documentation of risk related knowledge can be integrated to support the treatment of a single risk. Similarly, judgment on the appropriate person for treatment and "availability of resources" require *combination* of knowledge documented in various places. On the other hand, expertise on "how to develop business cases" can be developed through *internalization*, with training and practical examples.

Last but not least, in ***risk review***, judgments on the failure and stories of success of previous action plans can be *socialized*, i.e., communicated from experienced individuals to the risk register lead, if necessary, and further, definitely be *externalized/* documented in the risk register as a note and possibly in reports that will be circulated inside the directorate (to the risk register lead and the management teams) and *combined* with evidence from other action plans as documented in the risk register. Again, expertise on "how to update the risk register" can be supported through "learning by doing" *(internalization).*

	Required knowledge of	Contributor of required knowledge	Required communication type	Target audience(s)	Case specific type of knowledge		Typology of individual's knowledge (Nonaka and Takeuchi, 1995, Nonaka et al. 2001)	Proposed methods	
								Required mode of conversion (Nonaka and Takeuchi, 1995, Nonaka et al. 2001)	Proposed Changes
Risk identification (proactive risk management)	how the directorates operate	D	intradirectorate		directorate specific	operational area specific	explicit	internalization	induction and news bulletin
	daily practice in directorates	D	intradirectorate		directorate specific	operational area specific	tacit	socialization	internal informal meetings of small groups of people
	relationships among directorates	D, CGSU	intradirectorate, directorate-CGSU	CGSU	trust-wide	operational area specific	explicit	internalization	involving leadership
	interpersonal relationships	D	intradirectorate, interdirectorate		directorate specific	operational area specific	tacit	socialization	informal meetings of small groups of people and participation of RRL and CGSU in informal discussions
	interdependence among directorates	D, CGSU	intradirectorate, interdirectorate	CGSU	trust-wide	operational area specific	explicit	internalization	involving leadership
	collaboration among directorates	D	intradirectorate, interdirectorate		trust-wide	operational area specific	tacit	socialization	informal meetings of small groups of people, and RRL to participate in clinical governance meetings in other directorates
	issues reported	D, CGSU	intradirectorate, directorate-CGSU	RRL	trust-wide	risk management specific	explicit	combination	integration of reports related to incidents, claims, complaints, audits, clinical governance meetings
	what problems the directorates face (experience)	D	intradirectorate, interdirectorate	RRL	directorate specific	operational area specific	tacit	socialization, externalization	RRL to organise informal intradirectorate meetings and RRL to observe clinical governance meetings in other directorates, documentation of clinical governance meetings; development of cases to link problems observed with risks identified.
	compatibility with standards	D	interdirectorate, directorate-CGSU	DMgt, RRL	directorate specific	risk management specific	explicit	combination	integration of reports related to incidents, claims, complaints, audits, clinical
	how the Trust operates	D, CGSU	directorate-CGSU	DMgt, RRL	trust-wide	operational area specific	explicit	internalization	induction and news bulletin
	daily practice in the Trust	D, CGSU	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	operational area specific	tacit	socialization	informal meetings of small groups of people
	how to describe risks	CGSU	directorate-CGSU	RRL	trust-wide	risk management specific	explicit	internalization	training, "learn by doing"
	what to include in the risk register	CGSU	directorate-CGSU	RRL	trust-wide	risk management specific	explicit	internalization	training, "learn by doing"
	lessons learned	CGSU	intradirectorate, directorate-CGSU,	DMgt, RRL	trust-wide	operational area specific	tacit (experiences), explicit	externalization, combination	development of process to gather and disseminate
	themes	CGSU	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	risk management specific	tacit (experiences), explicit	externalization, combination	establishment of process to integrate knowledge from directorates and CGSU
Risk Assessment	the likelihood of a risk to occur	D, CGSU	intradirectorate, directorate-CGSU	DMgt, RRL, CGSU	trust-wide	operational area specific	tacit (personal judgement), explicit	externalization, combination	development of cases to link similar risks; integration of factors that affect likelihood
	the consequences if a risk occurs	D, CGSU	intradirectorate, directorate-CGSU	DMgt, RRL, CGSU	trust-wide	operational area specific	tacit (personal judgement), explicit	externalization, combination	development of cases to link similar risks, integration of factors that affect consequences
	how to use the 'risk assessment matrix'	CGSU	directorate-CGSU	RRL	directorate specific	risk management specific	explicit	internalization	training, "learn by doing" for RRL
Risk Treatment	the appropriate treatment	D	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	operational area specific	tacit, explicit	externalization, combination	development of cases to link similar risks; integration of factors that outline treatment
		CGSU			directorate specific	operational area specific			
	who has the expertise for treatment	D	intradirectorate	RRL	directorate specific	operational area specific	explicit	combination	integration of documentation of similar risks in the directorate
	availability of resources	D	intradirectorate	RRL	directorate specific	operational area specific	explicit	combination	integration of documentation
	how to develop business cases	CGSU	directorate-CGSU	RRL	trust-wide	risk management specific	explicit	internalization	training, practical examples
Risk Review	how to follow up and complete an action plan	D	intradirectorate, directorate-CGSU	CGSU	directorate specific	operational area specific	tacit (experience), explicit (previous risks)	socialization, externalization, combination	informal intradirectorate meetings of experienced people (including the CGSU), documentation in risk register and special reports, combination with evidence from other action plans
	how to update the risk register	CGSU	directorate-CGSU	RRL	trust-wide	risk management specific	explicit	internalization	"learn by doing"

Table 4-5. Proposed Framework

The proposed changes/ actions for improvement in the area of how risk management related knowledge is communicated in the Trust under study, can be summarised in the following four axes (Figure 4-7):

- Meetings, as a means of socialization of knowledge, i.e., circulation of tacit knowledge. Informal meetings inside each directorate, between risk register leads of different directorates, between risk register leads and members of the C.G.S.U., in C.G.S.U. and between the C.G.S.U. and the management of the directorate of healthcare governance and participation of the risk register leads in clinical governance meetings of other directorates is recommended.

- Dissemination tools, as a means for externalization, i.e., conversion of tacit knowledge into explicit. News bulletin inside the directorates and for the whole Trust, with "What's on" and "Lessons learned" sections and thorough documentation of clinical governance meetings are recommended.

- Creation of reports through existing documentation, as a means for combination, i.e., development of explicit knowledge based on existing explicit knowledge. Summary of risk management forms (claims, incidents, complaints); development of reports to integrate results of audits, clinical governance meetings, and risk management forms; development of cases to link problems observed with risks identified, or similar risks, or cross functional risks; development of reporting process for themes; integration of the contents of risk register(s); documentation of the factors that affect failure or success of an action plan or the management of a risk as a whole, are some of the recommended actions.

- Training, as a means of internalization, i.e., conversion of explicit knowledge into tacit. Induction sessions with emphasis on clinical governance and risk management, "learn by doing" mostly offered by the C.G.S.U. to risk register leads, and seminars to cover current needs are recommended.

Figure 4-7. Four axes of proposed changes

At this point, the author wishes to use an example to illustrate the connection between the risk management processes and the knowledge conversion modes. Knowledge required for risk identification characterised as tacit, e.g. *daily practice in the directorates, interpersonal relationships, collaboration among directorates, daily practice in the Trust*, is shared though socialization among a wider group of people and increases the awareness of the existence of a risk, thus increasing the probability of a new risk to be identified. In that sense, tacit knowledge is further "recorded" in the description of a new risk in the risk register (externalization). The new risk is combined with other knowledge in risk assessment and risk treatment and develops the risk register further.

4.5.2 Desirability and Feasibility of Proposed Changes

One of the fundamental concepts in S.S.M. when proposing changes for the system under study is to outline a model (of the purposeful activity system) "systemically desirable" and "culturally feasible" (Checkland 1981). The term "systemically desirable" refers to "relevant systems ... perceived to be truly relevant" (Checkland and Scholes 1999). In turn, the term "culturally feasible" refers to changes meaningful in terms of the culture of the situation under study.

In general, proposed changes are not an attempt to challenge the existing culture, in terms of norms, values, and power, discussed in sub-sections 4.2.2, 4.2.3. Rather, proposed actions should be implemented by:

(a) taking into account the facilitating role of the C.G.S.U.;

(b) exploiting the appreciation of the C.G.S.U. from the other directorates;

(c) using the authoritative behaviour of certain people in the directorates to inspire encouragement to participate in the course of risk management for the members of the directorates;

(d) transforming "blame" into collaboration to deal with mistakes and benefit from successes.

Socialization through informal meetings is important in order to exploit the existing channels of communication with shared culture and values and common language and stimulate sharing. Feasibility of this proposed action will be enhanced by encouraging and engaging leadership in the directorates.

Externalization through dissemination is essential so that tacit knowledge that can guide an action or decision and inspire or warn other directorates will be recorded to be retrieved when needed. However, the use of the Trust's intranet might be too ambitious to enhance the likelihood of this change to embed in the culture of the organisation, due to limited access or lack of time to access the intranet. Alternatively, newsletters can be on paper and circulated within the Trust.

Combination through grouping existing documents can support management of similar, cross functional and frequent risks; risks that have not even been identified. Finally, training, as a means for internalisation would be more feasible, culturally and practically, if based on "learning by doing" and brief seminars.

4.6 Conclusions

This chapter aggregated data collected from the organisation under study and presented the key findings. Following concepts of Soft Systems Methodology (based on Checkland and Scholes (1999)), the researcher developed a relevant model and

the framework proposed to support risk management in the organisation and described the context of implementation (e.g., desirability, feasibility).

The key findings from data collected can be summarised (from section 4.3):

- There is no specific implementation plan for the risk management strategy. As a result, the execution of risk management processes is problematic.
- The process of risk identification is often erratic.
- There are different views in scoring.
- Risk treatment, in general, is not structured.
- Risk registers are not "live" documents.
- Lessons learned is not a formalized and general practice.
- Knowledge exists in different levels of the organisation.
- There are different views in risk assessment.
- Communication between the C.G.S.U. and the directorates is sometimes affected by existing relationships.
- Inter-directorate communication, i.e., communication between directorates, often, depends on existing communication channels.
- Intra-directorate communication, i.e., communication inside directorates, depends on the relationships of people and the culture imposed by the management team.
- Communication inside the healthcare governance directorate is, in general, not problematic.

Based on what data have revealed and existing literature in the areas of risk management and knowledge management, this study developed a framework to support and coordinate the communication of knowledge about risks and risk management, in order to improve the implementation of the risk management policy and procedures and risk management strategy. The focal points of attention for the researcher after analysing the evidence were the requirement for interaction among members and groups in the organisation and the necessity for transformation of existing knowledge in order for it to be accessible and in the right format where and when needed.

In essence, inspired by Nonaka and Takeuchi (1995) and Nonaka et al. (2001), the researcher proposed a framework (Table 4-5) to communicate tacit knowledge and convert it into explicit and vice versa, though socialization, externalization, combination and internalization. In summary, four axes of actions were suggested (Figure 4-7). Namely, socialization through informal meetings, externalization through dissemination tools, combination through grouping existing documents, internalization through training.

The following chapter discusses the proposed framework and its constraints. Further, the significance and implications of the research are considered.

CHAPTER 5. DISCUSSION

5.1 Introduction

This chapter discusses the conceptual framework presented in the previous chapter (Chapter 4, Analysis) with reference to the aims and objectives of this study and its significance and implications for theory and practice.

Especially, the implications for theory and practice are discussed based on how the notion that knowledge generated in this study "adds, embellishes, or creates something beyond what is already known" (Ladik and Stewart 2008).

5.2 Proposed Framework

The current study investigated risk management in a healthcare organisation, member of the N.H.S. Trusts in England. More specifically, the focus was on the development and management of the risk registers, i.e., the logs where all the departments and directorates of the organisation record their risks, both clinical and corporate. The creation and maintenance of risk registers is based on the risk management processes, defined in the risk management policy and procedures of the organisation (NHS Trust Directorate of Corporate Services 2003) and rooted in the AS/NZS 4360 standard for risk management (1999). The risk management processes are: risk identification, risk assessment, risk treatment, and risk review. In addition, the top management of the directorate that is responsible for the implementation of the risk management strategy, i.e. the directorate of healthcare governance, has shown interest in the area of knowledge management from the beginning of the study and aspired to support the risk management processes by more effective use of risk and risk management related knowledge.

Based on data analysis, the problematic situation in the implementation of the risk management policy and procedures, in the organisation under study, is summarised, as:

- **Insufficient preparation, guidance and support for risk register related processes.** There is limited standardisation, guidance and training regarding the implementation of the risk management policy and procedures. The description of the risk management processes seems too generic to people from the directorates involved in the risk registers.

- Various levels of understanding on the risk management policy and procedures and risk register related processes within the Trust. The directorate of healthcare governance and (some) risk register leads in the directorates are the ones that can be viewed as most aware of the context of risk management, while the majority of the staff of the Trust is aware of risk in their areas, but lack understanding of the risk management strategy and risk management policy and procedures.

- **Dispersed knowledge about risks and risk management among highly specialised healthcare professionals.** The directorates possess experience to identify, assess, and treat the risks in their area ("directorate specific" and "operational area specific" knowledge), while the C.G.S.U. provides knowledge from the environment, e.g., guidelines and standards, ("risk management specific" knowledge) and knowledge regarding risks all over the Trust gained while communicating with the directorates ("Trust-wide" knowledge). For a comprehensive view on risks and risk management, a combination of the aforementioned types of knowledge is required.

- **Inadequate communication in the course of risk management throughout the whole Trust.** Risk and risk management related knowledge either resides in the minds of people in the directorates, or is shared within a group in a directorate, or is shared between directorates based on the daily operations of the Trust and not based on the requirements for risk management, or finally might be embedded in documents (e.g. reports). In other words, knowledge relevant to

risk management might be tacit or explicit or might even have both characteristics of tacit and explicit knowledge, based on the easiness of knowledge to be codified and formalised, as summarised in sub-section 2.2.1. Collected evidence shows that there is no systematic approach to facilitate the interaction among the stakeholders of the risk registers in the organisation under study. In essence, the broad categories of interaction required for risk management are: intra-directorate, i.e. in the directorates; inter-directorate, i.e. between directorates, including between the C.G.S.U. and the other directorates.

The framework that has been developed to address those issues (presented in Chapter 4, section 4.5, table 4-5) links every risk management process and its respective required knowledge with the required type of communication (i.e., intra and inter-directorate, or between directorates and C.G.S.U.); the case specific typology of knowledge presented in Chapter 4 (sub-section 4.4.1 and Figure 4-4), i.e., risk management specific or operational area specific knowledge and directorate specific or Trust-wide knowledge ; and the types of knowledge presented in Nonaka and Takeuchi (1995) and Nonaka et al. (2001), i.e., tacit and explicit knowledge.

The combination of the required type of communication, the case specific typology and the "tacit/ explicit typology" (Nonaka and Takeuchi 1995; Nonaka et al. 2001) leads to the proposed methods for the support of each risk management process (associated with the risk registers) through the management of knowledge that already exists in the Trust. The proposed methods consist of the knowledge conversion modes (in Nonaka and Takeuchi (1995); Nonaka et al. (2001)) i.e., socialization, externalization, combination, and internalization; and changes for the organisation, i.e., activities to facilitate knowledge conversion, and subsequently the circulation of dispersed knowledge where needed.

5.2.1 Relevance to Existing Theory

A starting point in the development of the framework is risk management literature (see also section 2.3). Namely, descriptions of risk management processes and especially the presentation of the risk management context in the AS/NZS 4360

standard (1999) sheds light on the importance of communication in the course of risk management. Further, risk management is described as a multi-dimensional decision-making process, where the type of knowledge regarding risks plays a significant role. In essence, perception of risk is based on judgments and assumptions, is shaped after attitudes and beliefs shared by a group (Douglas and Wildavsky 1982; Rosa 2003; Smithson 1989; Wynne 1989) and developed based on the context of a specific situation (Slovic 2001); thus is bounded by incomplete knowledge, or ignorance (Pidgeon 1998; Smithson 1989). The proposed framework has taken into account the role of knowledge that shapes risk perception and the significance of social interaction as knowledge fragmented within a group of professionals who share the same beliefs might be incomplete, thus leading to ignorance. In the Trust under study:

- incomplete knowledge, or knowledge dispersed in the organisation does not support proactive or reactive risk management adequately, e.g., knowledge about cross functional, similar, frequent, or significant risks usually resides in several sources in the organisation,

- incomplete knowledge due to the existence of different aspects that are taken into consideration when judging risks, leads to uninformed risk assessment and treatment, e.g., a risk assessed as significant in a directorate, based on directorate specific knowledge might seem less significant on a Trust level, based on Trust-wide knowledge,

- incomplete knowledge as a result of the beliefs of groups of professionals who judge risks, leads to incomplete risk registers, e.g., a corporate risk in a clinical directorate might be ignored,.

It becomes apparent that communication of risk and risk management related knowledge in the Trust under study is essential in order to handle the issue of incomplete knowledge and develop more comprehensive risk registers. At this point, literature in the area of knowledge management offers many insights regarding the circulation of organisational knowledge (see section 2.2). The

researcher has decided to use specific characteristics of risk and risk management related knowledge and use the typologies proposed in literature (presented in sub-section 2.2.1) in order to confront the issue of communication within the Trust in a structured manner. As already discussed in the previous chapter the distinction between tacit and explicit knowledge based on the viewpoint of Nonaka (1994) and Nonaka and Takeuchi (1995) is used in the proposed framework. This choice has no intention to ignore or underestimate the views opposing to the distinction between tacit and explicit knowledge, presented extensively in sub-section 2.2.1. In this case study and based on the researcher's point of view and judgement the distinction was feasible whereas cases where knowledge was considered as having characteristics of tacit and explicit have not been overlooked.

Based on collected data in the organisation under study *"knowledge is not an issue..."* (from interview with the management of healthcare governance), in the sense that the Trust has knowledge to identify, assess and treat risks and has also knowledge of the processes to manage risks. However, the issue is that knowledge regarding risks that have occurred or potential risks resides in the minds of individuals or groups of professionals (medical staff, nursing staff, administration, corporate services) and in numerous reports (e.g., incidents, claims, clinical governance reports).

The proposed framework based on the modes of knowledge conversion proposed by Nonaka and Takeuchi (1995) and Nonaka et al.(2001) indicates a *modus operandi* for risk management enhanced with more effective use of existing knowledge in the organisation under study. Different views on risks and their management can be synthesised in a "dialectical process", as stated in Nonaka and Toyama (2003). More specifically, the different views regarding risks will help to develop a comprehensive view of the risks occurring in the Trust. It is through social interaction that different views are communicated and through the knowledge conversion processes that dissimilar views are shared, synthesised, resolved and embedded in a "complete" risk register. It should be clarified that the proposed framework does not simply allocate knowledge to risk management processes and knowledge conversion modes. Rather, it is proposed that the risk management processes are based on the creation of new knowledge regarding risks and risk management in the sense that

during the risk management processes, knowledge moves from the individual to the organisational level and evolves from an inaccessible format to knowledge that is available throughout the stakeholders of the risk registers. indeed, the isk management processes cannot be implemented effectively if relevant knowledge residing in the minds of people is not converted in a "common good" for the Trust, is not communicated, is not available where and when needed, does not create a common mental place for the stakeholders of risk management to meet and confront risks that create either threats or opportunities for the organisation.

For each mode of conversion, based on the required communication type, i.e. intra-directorate, inter-directorate, between the CGSU and the other directorates, and case specific type of knowledge, i.e. directorate specific or Trust wide; operational area specific or risk management specific, the framework indicates some actions, like use of informal channels of knowledge sharing, use of stories, etc. In the knowledge spiral (Nonaka and Takeuchi 1995; Nonaka et al. 2001) the expertise in the minds of people circulates through personal discussions (socialization); is further recorded in reports (clinical governance reports, risk registers) (externalization); is then combined to support proactive management and risk identification assessment, treatment and review (combination); and the fundamentals of risk management are further embedded in the risk management routines and practice (internalization). More specifically:

Socialization (Figure 5-1) is proposed to be facilitated through informal channels such as unscheduled meetings, personal contact and informal discussions. Alavi and Leidner (2001) discuss informal and formal channels for knowledge sharing and state that in informal channels the transfer of knowledge is not guaranteed. Further, they add that context specific knowledge is easily transferred through personal channels. Similarly, Brown and Duguid (1998) note that "e-mail should not replace the coffee pot and the water cooler".

For healthcare organisations, informal networks and communities play an important role in knowledge sharing (Gabbay and Le May 2004; Tagliaventi and Mattarelli 2006). Especially stories can be used as means that strengthen communication of

experiences (Boland and Tenkasi 1995; Brown and Duguid 1991; Donaldson et al. 2005).

Externalization (Figure 5-2) is proposed through analogies (Nonaka and Takeuchi 1995), used in the intranet and a newsletter, e.g., a case similar in more than one directorates can be disseminated in the whole Trust. Further, formal channels, as meetings are proposed; as they might provide more guaranteed levels of knowledge transfer (Alavi and Leidner 2001).

	Required knowledge of	Contributor of required knowledge	Required communication type	Target audience(s)	Case specific type of knowledge		Typology of individual's knowledge (Nonaka and Takeuchi, 1995, Nonaka et al., 2001)	Proposed methods	
								Required mode of conversion (Nonaka and Takeuchi, 1995, Nonaka et al., 2001)	Proposed Changes
Risk Identification	daily practice in directorates	D	intradirectorate	St	directorate specific	operational area specific	tacit	socialization	internal informal meetings of small groups of people
	interpersonal relationships	D	intradirectorate, interdirectorate	St	directorate specific	operational area specific	tacit	socialization	informal meetings of small groups of people and participation of RRL and CGSU in informal discussions
	collaboration among directorates	D	intradirectorate, interdirectorate	St	trust-wide	operational area specific	tacit	socialization	informal meetings of small groups of people, and RRL to participate in clinical governance meetings in other directorates
	what problems the directorates face (experience)	D	intradirectorate, interdirectorate	RRL	directorate specific	operational area specific	tacit	socialization, externalization	RRL to organise informal intradirectorate meetings and RRL to observe clinical governance meetings in other directorates; documentation of clinical governance meetings; development of cases to link problems observed with risks identified.
	daily practice in the Trust	D, CGSU	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	operational area specific	tacit	socialization	informal meetings of small groups of people
Risk Review	how to follow up and complete an action plan	D	intradirectorate, directorate-CGSU	CGSU	directorate specific	operational area specific	tacit (experience), explicit (previous risks)	socialization, externalization, combination	informal intradirectorate meetings of experienced people (including the CGSU), documentation in risk register and special reports, combination with evidence from other action plans

Figure 5-1. Socialization (St: staff; RRL: risk register lead; DMgt: directorate management, CGSU: Clinical Governance Support Unit; D: directorate)

	Required knowledge of	Contributor of required knowledge	Required communication type	Target audience(s)	Case specific type of knowledge		Typology of individual's knowledge (Nonaka and Takeuchi, 1995, Nonaka et al., 2001)	Proposed methods	
								Required mode of conversion (Nonaka and Takeuchi, 1995, Nonaka et al., 2001)	Proposed Changes
Risk identification	what problems the directorates face (experience)	D	intradirectorate, interdirectorate	RRL	directorate specific	operational area specific	tacit	socialization, externalization	RRL to organise informal intradirectorate meetings and RRL to observe clinical governance meetings in other directorates, documentation of clinical governance meetings, development of cases to link problems observed with risks identified
(proactive risk management)	lessons learned	CGSU	intradirectorate, directorate-CGSU,	DMgt, RRL	trust-wide	operational area specific	tacit (experiences), explicit	externalization, combination	development of process to gather and disseminate
	themes	CGSU	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	risk management specific	tacit (experiences), explicit	externalization, combination	establishment of process to integrate knowledge from directorates and CGSU
Risk Assessment	the likelihood of a risk to occur	D, CGSU	intradirectorate, directorate-CGSU	DMgt, RRL, CGSU	trust-wide	operational area specific	tacit (personal judgement), explicit	externalization, combination	development of cases to link similar risks; integration of factors that affect likelihood
	the consequences if a risk occurs	D, CGSU	intradirectorate, directorate-CGSU	DMgt, RRL, CGSU	trust-wide	operational area specific	tacit (personal judgement), explicit	externalization, combination	development of cases to link similar risks; integration of factors that affect consequences
Risk Treatment	the appropriate treatment	D	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	operational area specific	tacit, explicit	externalization, combination	development of cases to link similar risks; integration of factors that outline treatment
		CGSU			directorate specific	operational area specific			
Risk Review	how to follow up and complete an action plan	D	intradirectorate, directorate-CGSU	CGSU	directorate specific	operational area specific	tacit (experience), explicit (previous risks)	socialization, externalization, combination	informal intradirectorate meetings of experienced people (including the CGSU), documentation in risk register and special reports, combination with evidence from other action plans

Figure 5-2. Externalization (St: staff; RRL: risk register lead; DMgt: directorate management, CGSU: Clinical Governance Support Unit; D: directorate)

Regarding ***combination*** (Figure 5-3), where mainly the development of integrated reports is proposed, existing literature refers to the concept of *organisational memories*, as repositories of knowledge, where there is no need for synchronisation or direct interaction between sender and recipient, i.e., integrated reports can be stored and used where and when needed. Croasdell (2001) argues that recollections of past events help members of the organisation to understand the context of a situation and avoid "reinventing the wheel". By the same token, Cohen and Levinthal (1990) stress the importance of accumulated prior knowledge, as it increases the ability to put new knowledge into memory (i.e., acquisition of knowledge) and the ability to use knowledge. Learning has an associative character, in the sense that new events are remembered through linkages with pre-existing.

However as Stein (1995) notes, the dimension of time is crucial in organisational memories. In the case of the Trust, both long-term (e.g., historical data that reveal themes of incidents) and short-term memories (e.g., updated clinical governance reports) are required. The distinction between short and long-term memories is not always easy however, both are needed for the support of reactive and proactive risk management. It is particularly short-term memories that can be used for reactive risk management and long-term ones that can support proactive risk management.

For ***internalisation*** (Figure 5-4), training and encouragement to get involved and participate in risk management is proposed. Levitt and March (1988) discuss that the lessons from experiences can be accumulated and maintained in organisational routines. Further, Newell et al. (2003) suggest that "emphasis should be placed on disseminating information related to the process of generating knowledge about current practices", rather than trying to apply a certain practice in different contexts.

	Required knowledge of	Contributor of required knowledge	Required communication type	Target audience(s)	Case specific type of knowledge		Typology of individual's knowledge (Nonaka and Takeuchi, 1995, Nonaka et al. 2001)	Proposed methods: Required mode of conversion (Nonaka and Takeuchi, 1995, Nonaka et al. 2001)	Proposed methods: Proposed Changes
Risk Identification (proactive risk management)	issues reported	D, CGSU	intradirectorate, directorate-CGSU	RRL	trust-wide	risk management specific	explicit	combination	integration of reports related to incidents, claims, complaints, audits, clinical governance meetings
	compatibility with standards	D	interdirectorate, directorate-CGSU	DMgt, RRL	directorate specific	risk management specific	explicit	combination	integration of reports related to incidents, claims, complaints, audits, clinical
	lessons learned	CGSU	intradirectorate, directorate-CGSU,	DMgt, RRL	trust-wide	operational area specific	tacit (experiences), explicit	externalization, combination	development of process to gather and disseminate
	themes	CGSU	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	risk management specific	tacit (experiences), explicit	externalization, combination	establishment of process to integrate knowledge from directorates and CGSU
Risk Assessment	the likelihood of a risk to occur	D, CGSU	intradirectorate, directorate-CGSU	DMgt, RRL, CGSU	trust-wide	operational area specific	tacit (personal judgement), explicit	externalization, combination	development of cases to link similar risks; integration of factors that affect likelihood
	the consequences if a risk occurs	D, CGSU	intradirectorate, directorate-CGSU	DMgt, RRL, CGSU	trust-wide	operational area specific	tacit (personal judgement), explicit	externalization, combination	development of cases to link similar risks; integration of factors that affect consequences
Risk Treatment	the appropriate treatment	D	intradirectorate, directorate-CGSU, interdirectorate	DMgt, RRL	trust-wide	operational area specific	tacit, explicit	externalization, combination	development of cases to link similar risks; integration of factors that outline treatment
		CGSU			directorate specific	operational area specific			
	who has the expertise for treatment	D	intradirectorate	RRL	directorate specific	operational area specific	explicit	combination	integration of documentation of similar risks in the directorate
	availability of resources	D	intradirectorate	RRL	directorate specific	operational area specific	explicit	combination	integration of documentation
Risk Review	how to follow up and complete an action plan	D	intradirectorate, directorate-CGSU	CGSU	directorate specific	operational area specific	tacit (experience), explicit (previous risks)	socialization, externalization, combination	informal intradirectorate meetings of experienced people (including the CGSU), documentation in risk register and special reports, combination with evidence from other action plans

Figure 5-3. Combination (St: staff; RRL: risk register lead; DMgt: directorate management, CGSU: Clinical Governance Support Unit; D: directorate)

	Required knowledge of	Contributor of required knowledge	Required communication type	Target audience(s)	Case specific type of knowledge		Typology of individual's knowledge (Nonaka and Takeuchi, 1995, Nonaka et al., 2001)	Proposed methods: Required mode of conversion (Nonaka and Takeuchi, 1995, Nonaka et al., 2001)	Proposed Changes
Risk Identification	how the directorates operate	D	intradirectorate	St	directorate specific	operational area specific	explicit	internalization	induction and news bulletin
	relationships among directorates	D, CGSU	intradirectorate, directorate-CGSU	CGSU	trust-wide	operational area specific	explicit	internalization	involving leadership
	interdependence among directorates	D, CGSU	intradirectorate, interdirectorate	CGSU	trust-wide	operational area specific	explicit	internalization	involving leadership
	how the Trust operates	D, CGSU	directorate-CGSU	DMgt, RRL	trust-wide	operational area specific	explicit	internalization	induction and news bulletin
	how to describe risks	CGSU	directorate-CGSU	RRL	trust-wide	risk management specific	explicit	internalization	training, "learn by doing"
	what to include in the risk register	CGSU	directorate-CGSU	RRL	trust-wide	risk management specific	explicit	internalization	training, "learn by doing"
Risk Assessment	how to use the 'risk assessment matrix'	CGSU	directorate-CGSU	RRL	directorate specific	risk management specific	explicit	internalization	training, "learn by doing" for RRL
Risk Treatment	how to develop business cases	CGSU	directorate-CGSU	RRL	trust-wide	risk management specific	explicit	internalization	training, practical examples
Risk Review	how to update the risk register	CGSU	directorate-CGSU	RRL	trust-wide	risk management specific	explicit	internalization	"learn by doing"

Figure 5-4. Internalisation (St: staff; RRL: risk register lead; DMgt: directorate management, CGSU: Clinical Governance Support Unit; D: directorate)

5.2.2 Constraints on Proposed Changes

In general, the changes proposed for the Trust's risk management might be considered desirable and feasible for the organisation, by the researcher; however, their implementation and viability depends on factors stressed in the risk management, knowledge management and healthcare management literature.

- Cultural and behavioural barriers, as presented in Hackett et al. (1999), such as viewing risk management as another management agenda, in combination with frequently observed managerial and clinical clash (Nicolini et al. 2008); limited resources to support new requirements (e.g., combination of existing documentation, publishing newsletters); and fear of losing power and status when sharing knowledge and especially when reporting errors.

- Causes of "stickiness" in knowledge communication, described by Szulanski (Szulanski 1996; 1995), such as causal ambiguity linked with limited understanding of the context of new knowledge, lack of motivation for both the source and recipient to share, lack of absorptive capacity on an organisational level, organisational context limited by formal structures, and arduous relationships in the organisation.

- The nature of medical knowledge, characterised as "highly fragmented and distributed" in Nicolini et al. (2008), shared among certain networks of communication. Especially, the knowledge flow between doctors and other professions in the organisation seems to be one way; from doctors to the other professionals (Currie and Suhomlinova 2006; Edwards et al. 2005).

In short, the Trust has to support the existing risk management policy and procedures with initiatives aiming to advance communication of relevant tacit and explicit knowledge among individuals and groups, without ignoring the idiosyncrasies of the organisation. Bate and Robert (2002) argue that "maintaining

motivation and commitment from hard-pressed staff for over a year requires strong local leadership and support..." while "identifying appropriately skilled frontline staff to lead and participate... may hamper progress". They add that knowledge transfer is not straightforward, and it is "naïve to assume that by facilitating meetings between individuals the desired knowledge flows will simply occur". Therefore, the Trust has to invest more on the current channels of communication and enhance existing relationships among groups (e.g., communication among the directorates), rather than imposing new relationships through rules and regulations. Once the first positive results of the process are revealed to the directorates, the organisation will have more chances to succeed in the creation of additional channels. Moreover, leadership, especially in the directorates, should be inspiring and aiming to engage everyone in the cycle of risk management. In parallel, existing networks of power (individuals or groups), where power is related to professional or organisational status, can exercise positive influence, or even be persuaded not to exercise any negative power, on the implementation of the initiatives proposed in the current study. Especially, in the latter case, involvement in decision making and planning, feedback and communication of positive results could bring more people "on board". Finally, in order to increase the risks reported, the organisation has to focus on communicating a "no blame" culture throughout all the levels of the hierarchy, without compromising the required accountability.

5.3 Implications for Theory

This research proposes a conceptual framework that links risk management processes in a healthcare organisation, member of the N.H.S. (in the U.K.) i.e., risk identification, assessment, treatment, and review, with (a) knowledge required for the risk management processes and (b) knowledge creation processes i.e., socialization, externalization, combination, internalization (Nonaka and Takeuchi 1995; Nonaka et al. 2001) for the exploitation of existing risk and risk management related knowledge by the risk management processes.

In essence, the proposed framework uses an already existing model for knowledge creation that is so far "prescribed" for innovation and new product development (Choi and Lee 2002; Kidd 1998; Nonaka and Takeuchi 1995) and is shaped after the cultural characteristics of Japanese firms in the knowledge management literature, in a different context, that is risk management in healthcare organisations. It is therefore considered constructive for both the areas of risk management and knowledge management.

First, the identification of required knowledge for the risk management processes accentuated the notion that risk and risk management related knowledge is incomplete as it resides usually in several sources in the organisation, there are different aspects that have to be taken into consideration when judging risks and it is bounded by the beliefs of groups of professionals who judge risks. As a result, the proposed framework had to outline how the risk management processes can be performed with complete relevant knowledge.

In this study, in order to outline the types of knowledge that have to be consolidated and the type of communication that has to take place for an informed view of risk management, the researcher uses a case specific typology of this knowledge, presented in Chapter 4 (sub-section 4.4.1, Figure 4-4) i.e., risk management specific or operational area specific and directorate specific or Trust-wide; a typology that indicates the required type of interaction for risk management in the Trust (intra-directorate, inter-directorate, between the C.G.S.U. and the other directorates).

Implication: This study outlines a business-process oriented typology of knowledge.

The knowledge management literature offers several typologies of knowledge based on Polanyi's tacit dimension of knowledge (1966) and combinations of the degree of aggregation (individual or collective) and the degree of articulation (tacit or explicit) of organisational knowledge (Blackler 1995; Nonaka 1994; Nonaka and Takeuchi 1995; Spender 1996; Spender 1994). However, they are generic enough to guide knowledge processes (e.g., tacit knowledge needs different transfer channels than explicit), but not specific enough to guide knowledge processes more precisely

for certain processes in an organisation, like risk management (Figure 5-5). In other words, apart from the typologies based on the degree of aggregation and degree of articulation, this study presents a business process oriented categorisation, where the source that possesses parts of incomplete knowledge forms a type of knowledge and the interaction between sources of knowledge is crucial.

Second, the proposed framework aimed to cover the issue of inadequate communication of risk and risk management related knowledge and thus incomplete knowledge for the risk management processes by using the area of knowledge management.

In this study, it is argued that, the desired flow of knowledge during the risk management processes is influenced by the easiness of existing knowledge to be communicated. For this reason, existing required knowledge is distinguished in tacit and explicit, where possible. The exploitation of existing risk and risk management knowledge is informed by the knowledge conversion modes proposed in Nonaka and Takeuchi (1995) and Nonaka et al. (2001). Namely, the proposed framework links the generic knowledge conversion modes (i.e., socialization, externalization, combination, internalization) with the risk management processes outlined in AS/NZS 4360 standard (1999). The knowledge conversion processes transform existing knowledge in modes that are useful for the continuity of the risk management cycle.

Implication: This study confronts the issue of incomplete knowledge raised in the field of risk management with the well accepted SECI model.

Risk management literature presents standards with high level descriptions of risk management processes that can be followed by organisations (AS/NZS 4360 1999; Chapman and Ward 1997; Liley and Lambden 1999; MoD(PE)-DPP(PM) 1991; Project Management Institute 2000) (see sub-section 2.3.1). Further, in the risk management literature there are arguments about risk related incomplete knowledge that increases the uncertainty and therefore influences risk perception (see sub-section 2.3.1).

(Douglas and Wildavsky 1982; Pidgeon 1998; Slovic 2001; Smithson 1989; Wynne 1989) In short, existing standards in the risk management literature describe how risk is or should be managed through process-based frameworks but do not examine the content of risk management, what is actually processed and how "it" should be processed. In other words, existing risk management standards and theories do not investigate risk related knowledge and how to deal with it (Figure 5-5).

In addition, in the knowledge management literature, knowledge management is defined as the "conceptual framework that encompasses all activities and perspectives required to gaining an overview of creating, dealing with, and benefiting from the corporation's knowledge assets and their particular role in support of the corporation's business and operations..." (Wiig 1995). However, in the knowledge management literature there is no specific link between the management of organisational knowledge and the idiosyncrasies of organisational processes like risk management (Figure 5-5).

This study verifies the issue of incomplete risk related knowledge raised in the risk management literature, as a result of inadequate communication in the Trust. Further, the researcher moves from the identification of the "problem", in this case the impact of incomplete knowledge on risk management in the organisation under study to the development of a framework that outlines ways to coordinate the different sources of knowledge and facilitate knowledge flow within the Trust.

The proposed framework employs the SECI model for the requirements of risk management. While the SECI model is so far promoted as a tool that supports innovation and new product development (Choi and Lee 2002; Kidd 1998; Nonaka and Takeuchi 1995), in this study it is redefined to support a complex decision making process, that requires transformation of knowledge that already exists in the organisation through inter-organisational communication. Namely, this study has revealed that the risk management processes involve a social interaction among members and different levels of the organisational hierarchy in order to integrate existing relevant knowledge that consists of complementary and sometimes even

conflicting beliefs and expertise on the existence, severity, and treatment of risks. Through this social interaction, existing knowledge is recreated in two dimensions:

Knowledge is converted from tacit to explicit (and vice versa), through the knowledge conversion modes. In essence, this study highlights specific characteristics of the content of risk management, i.e. knowledge that have an impact on the required communication among the stakeholders of risk management.

Knowledge evolves from the individual level to the directorate and Trust level. "An individual's knowledge is amplified and crystallized as a part of the knowledge network of an organisation" (Nonaka 1994) In essence, this study highlights the importance of risk related knowledge possessed by individuals and also the significance of sharing this kind of knowledge.

To conclude, the proposed framework encourages viewing risk management as more than a list of actions and reports or documents that have to be filled in. This study presents the knowledge-intensive, decision making-oriented and human interaction-dependent side of risk management. The risk management processes presented in the literature are amplified with the requirement for knowledge conversion.

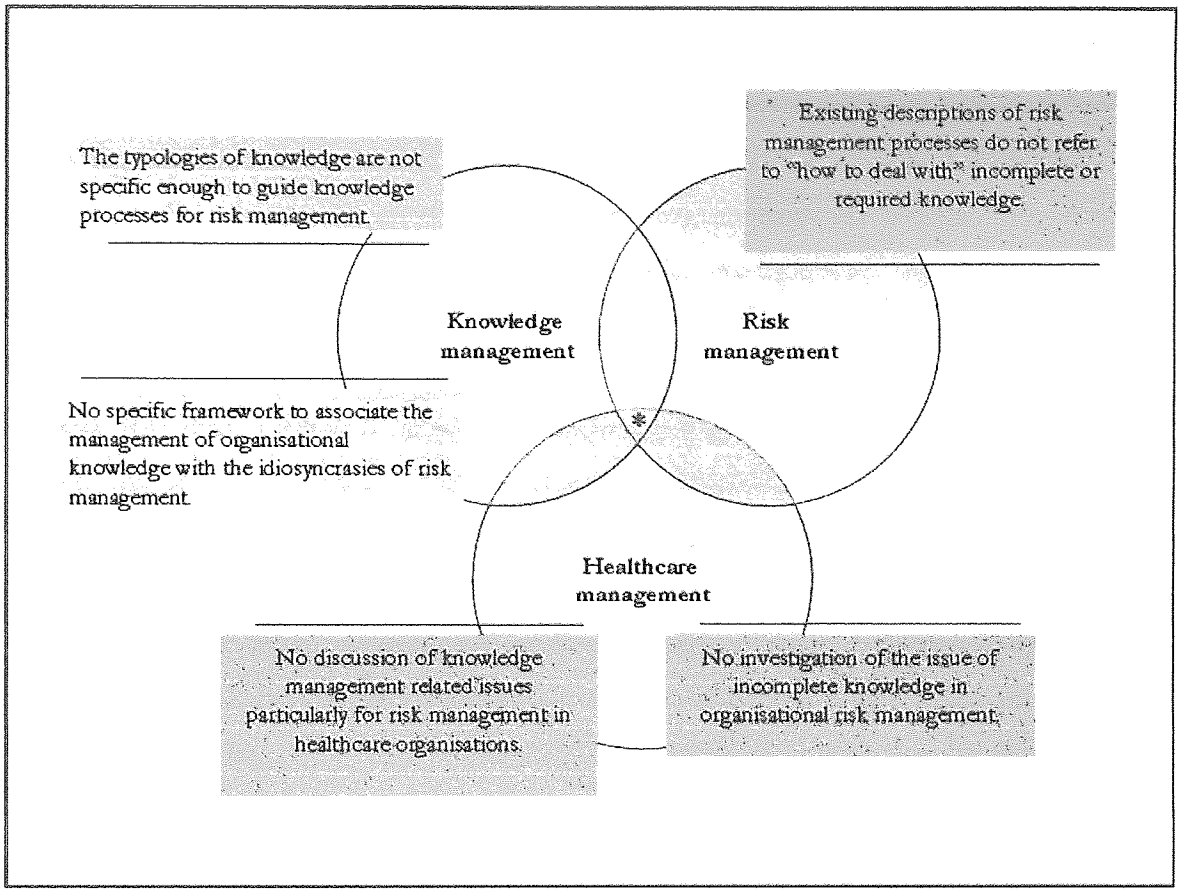


Figure 5-5. Research Implications for Theory and Practice

5.4 Implications for Practice

One of the challenges of this research was to investigate the literature for current views on risk management, knowledge management, and healthcare management and identify notions that could be used to develop for the organisation under study a framework that supports the risk management requirements and deals with the issues of the risk registers. In general, this combination leads to the theoretical and managerial contribution of this study.

As discussed in section 5.3, the theoretical contribution of this study consists of (a) the definition of a business-process oriented typology of knowledge and (b) the de-construction of risk management based on of its vital resources, i.e. knowledge and enhancement of the risk management processes with the use of the SECI model.

Moreover, this study has a major impact for practice as it (a) provides a structure for the development and maintenance of a key tool for risk management, i.e. the risk register, based on empirical evidence from a real situation and (b) proposes actions for the exploitation of existing risk register related knowledge taking into account the specific characteristics of a healthcare organisation (in Figure 5-5, the intersection of knowledge management, risk management and healthcare management noted as "*" area).

First, this study aspired to achieve an understanding in the way the risk registers were developed and managed in the Trust and design a framework based on the specific needs and issues of the risk registers, as revealed by collected evidence.

In this study, in depth investigation of how the risk registers are developed and managed in the N.H.S. Trust revealed that knowledge has a significant role. As already discussed, the proposed framework (a) identifies knowledge required for each of the risk management processes in the development and maintenance of the risk registers described in the risk management policy and procedures of the Trust under study (NHS Trust Directorate of Corporate Services 2003), (b) defines the required type of communication within the organisation for the development and management of the risk registers and (c) links risk and risk management related knowledge with methods from the area of knowledge management, in order to support risk management processes employed for the risk registers, with more effective use of relevant knowledge. These methods consist of the SECI knowledge conversion modes (Nonaka and Takeuchi 1995; Nonaka et al. 2001), and actions to support knowledge conversion.

Implication(s): Risk register is redefined as a knowledge intensive tool for risk management and the risk management processes employed for the development and maintenance of the risk registers are amplified with the SECI knowledge conversion modes in a practical framework. The latter contributes to N.H.S. Trusts, organisations that follow the AS/NZS 4360 standard (1999), and healthcare organisations with process-oriented risk management programmes.

Risk management is a major concern for the National Health Service (N.H.S.) in the U.K. (Department of Health 1998; Department of Health 2000a). Namely, N.H.S. Trusts have to follow the AS/NZS 4360 standard for risk management (1999) and develop risk registers as "the log of risks of all kinds that threaten an organisation's success in achieving its declared aims and objectives" (Controls Assurance Support Unit 2002). The Department of Health has circulated general outlines on how to create risk registers (Controls Assurance Support Unit 2002).

In this study, data reveals that risk registers are more than logs of risks. Actually, risk registers are the focal point in risk management with knowledge being one of their vital resources. Therefore, the risk registers should contain the trends from the reports (e.g. clinical governance reports) but also reflect the experience of people regarding "what is going on" in the organisation. For example, statistical data on incidents might indicate a new risk, but it is the sense of people who work in the organisation that indicates a potential risk, as well. The risk register should be the result of on-going communication among stakeholders of risk management and contributors of risk and risk management related knowledge.

However, none of the above is systematically realised. This study sheds light on the dynamic and knowledge-based perspective of the risk registers and thus potentially contributes to the change of attitudes that view the risk registers as another bureaucratic device.

Similarly, the identification of the importance of knowledge in risk management for healthcare organisations and the respective significance of employing knowledge management methods to support the risk management processes has an implication for the Department of Health, in the U.K., as it gives orientation to implementation plans for risk management programmes in the N.H.S. Trusts (Department of Health 1997; 1999a; 2000a; 2006).

Further, the proposed framework moves beyond pinpointing the knowledge intensive nature of the risk registers and outlines a practical frame that describes required knowledge for the risk registers and ways to make this knowledge available

and accessible for the stakeholders of the risk registers in the organisation under study.

Therefore, the proposed framework can actually be used for the day-to-day operations of the risk registers in the Trust under study or in other NHS Trusts or healthcare organisations that follow the AS/NZS 4360 standard (1999).

Even for healthcare organisations that do not comply with the AS/NZS 4360 standard (1999), the process followed during this study for the development of the proposed framework (see section 4.4) can be used as a roadmap for the association of other risk management processes requirements with the SECI model.

Second, the proposed framework had to take into account the specific characteristics of a healthcare organisation. The proposed framework aims to communicate throughout a healthcare organisation, risk and risk management related knowledge that resides in the minds of groups of professionals (medical staff, nursing staff, administration, corporate services) and in numerous reports (e.g., incidents, claims, clinical governance reports).

In this study, the proposed framework contains ways (see Figure 4-7) to address the issue of incomplete knowledge in the course of risk management from a healthcare management point of view, including the idiosyncrasies of a healthcare organisation, where highly specialised professionals have to collaborate and contribute to make incomplete knowledge more "complete", despite any fears of being blamed for making mistakes or being responsible for incidents.

Implication: The idiosyncrasies of healthcare organisations are taken into account in an action plan for knowledge management in the risk registers.

Literature in the area of healthcare management in general, and the N.H.S. in particular, views risk management as a "programme" that has to be implemented by organisations while certain barriers and features for its successful development are outlined, as involvement of highly specialised groups of professionals, existence of

"blame" culture cultivating fear to report mistakes, existence of strong channels of communication dictated by the day-to-day operations of the organisation, etc. (Hackett et al. 1999; Irvine 1997) (see sub-section 2.3.2). While the benefits from the deployment of such a "programme" are widely discussed, healthcare management literature does not investigate the issue of incomplete knowledge or the issue of knowledge, in general, in organisational risk management (Figure 5-5).

Likewise, literature in the area of healthcare management contains publications that discuss knowledge sharing as an issue in healthcare organisations (Bate and Robert 2002; Currie and Suhomlinova 2006; Nicolini et al. 2008; Tagliaventi and Mattarelli 2006) (see sub-section 2.2.6). However, healthcare management literature does not discuss knowledge management related issues particularly for risk management (Figure 5-5).

This study exploits the specific factors that influence the successful implementation of risk management programmes (Hackett et al. 1999; Irvine 1997) and the effective sharing of risk related knowledge within healthcare environments (Bate and Robert 2002; Currie and Suhomlinova 2006; Nicolini et al. 2008; Tagliaventi and Mattarelli 2006), as listed in the relevant literature. In essence, such factors are taken into account when proposing: formal and informal meetings, dissemination activities, reporting, and training to facilitate the knowledge conversion modes, for the development and maintenance of the risk registers. The proposed framework does not aspire to provide a detailed action plan for knowledge management in healthcare organisations. However, it indicates that implementation and action plans for risk management should take into consideration of peculiarities of the sector.

5.5 Conclusions

This chapter discusses the link between the proposed framework and existing theories in the literature of risk management, knowledge management, and healthcare management and identifies the implications of this study in theory and practice.

Namely, the proposed framework was prepared to support the risk management processes regarding the risk registers in a N.H.S. Trust with "tools" from the area of knowledge management. Issues revealed through data analysis including problematic implementation of risk management processes, variety in the awareness of the context of risk management in the organisation, dispersed knowledge about risks and risk management throughout the organisation, and inadequate communication for risk management are addressed with a framework that links risk management processes, types of required knowledge and methods for its management. Starting from the significant and problematic points of risk management as they were presented in the relevant literature and combining them with the typology of organisational knowledge, i.e., tacit and explicit knowledge, based on Nonaka and Takeuchi (1995) and Nonaka et al. (2001), the proposal of this study outlines the required knowledge conversion, based on the SECI knowledge conversion modes as presented in Nonaka and Takeuchi (1995) and Nonaka et al. (2001) and the activities to facilitate the proposed conversion, based on existing literature on organisational learning, organisational memories, and knowledge sharing.

Further, this chapter outlined the constraints in the implementation of the proposed changes in the organisation under study, based on existing literature in the areas of knowledge management and healthcare management.

Finally, the implications of this research in theory and practice are highlighted, as the study accentuates the importance of knowledge for risk management and links three disciplines: risk management, knowledge management, and healthcare

management by elaborating on the issues of incomplete knowledge in risk management in healthcare organisations and proposing a framework that can be used as a reference in the implementation plan of risk management programmes.

The following chapter highlights the key points of this study, defines its limitations, and outlines issues for further research.

CHAPTER 6. SUMMARY & CONCLUSIONS

6.1 Research Overview

6.1.1 Aim and Objectives of Research

The current study investigates the risk management processes employed to support the creation and management of risk registers; i.e., the tools to monitor risks, in a N.H.S. (Foundation) Trust, in England, in order to propose a knowledge-based framework for risk management. The risk management processes are based on the AS/NZS 4360 standard for risk management (1999), adopted widely in the N.H.S. and include: risk identification, risk assessment, risk treatment and risk review. In particular, the focus of the research was to:

- Investigate the risk management processes in relation to the risk registers:
  - How are risk management processes, outlined in the Trust's risk management policy and procedures, carried out;
  - how are risk registers developed and maintained in the course of risk management;
  - what are the issues in the management of the risk registers.
- Investigate risk management processes in relation to information and knowledge for the risk registers:
  - What are the information requirements for each risk management process;
  - what are the knowledge requirements for each risk management process;
  - what is the status of existing knowledge;

- what are the issues regarding knowledge.

- Investigate risk management processes for the risk registers in relation to the stakeholders:

  - Who gets involved in the creation and management of the risk registers;

  - what are the existing relationships among stakeholders in the management of the risk registers;

  - what are the issues regarding the stakeholders and their relationships.

- Investigate how risk management processes for the risk registers can be facilitated by using the required (identified through the research) knowledge. Explore the area of knowledge management for way(s) to facilitate the management of risk registers.

Review of the literature in the areas of knowledge management and risk management and also in the healthcare sector regarding knowledge management and risk management has revealed that even though risk management literature views knowledge as a vital resource there is no reference as to how this resource can be exploited for risk management. Further, the knowledge management literature does not discuss the management of knowledge for the area of risk management.

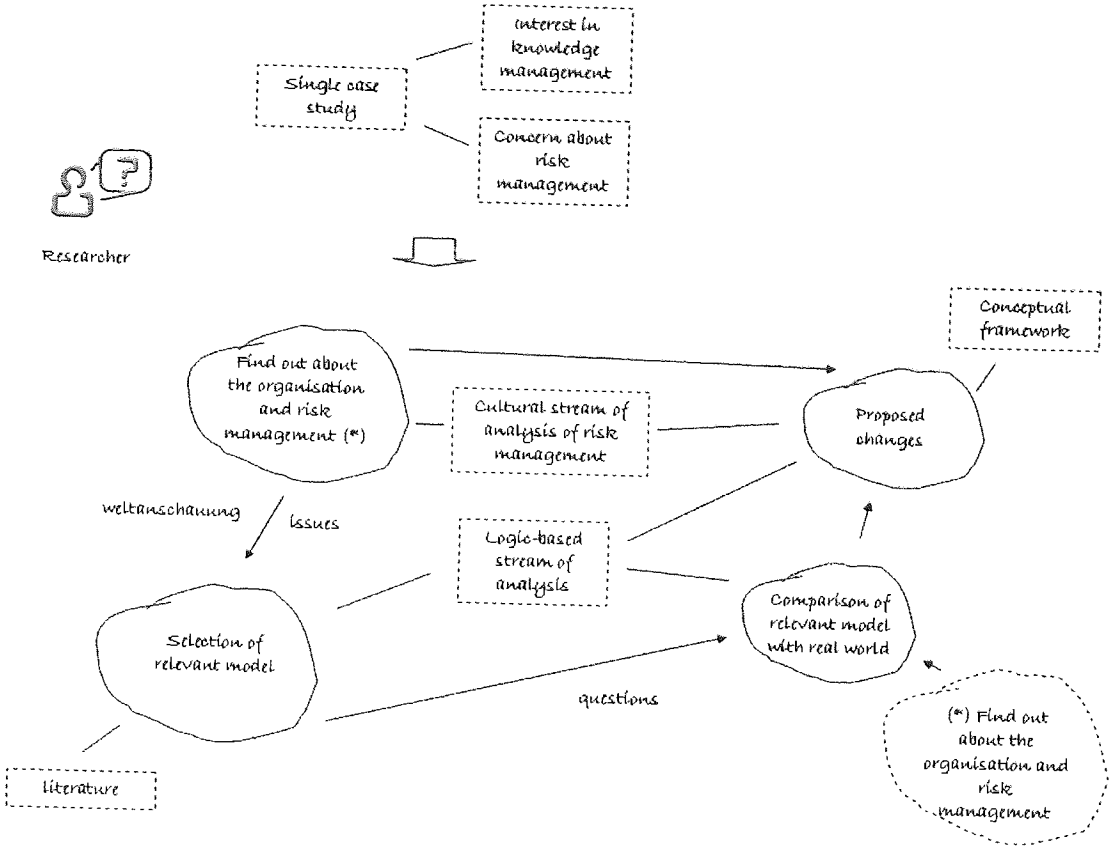


Figure 6-1. Research Process

The research based on a single case study in a N.H.S. (Foundation) Trust, in England and influenced by the principles of Soft Systems Methodology investigates the situation considered problematic, i.e., the management of the risk registers through the four key risk management processes (risk identification, risk assessment, risk treatment, risk review), by taking into account the perceptions of the main stakeholders in the situation, namely the directorate of healthcare governance and the team dedicated to the risk registers, i.e., the Clinical Governance Support Unit, and the rest of the Trust's directorates that own the risk registers (Figure 6-1). The following sub-section describes the research process.

6.1.2 Research Process

Data collected during the research through interviews with people from the directorate of healthcare governance and the other directorates that own the risk

registers, observations of meetings in the Trust regarding risk management (e.g., clinical governance meetings) and documentation provided evidence for "finding out about the organisation and risk management" (Figure 6-1) and consequently for the questions introduced in section 1.1 and presented above (subsection 6.1.1) regarding the risk management processes, the development and maintenance of risk registers, risk and risk management related information and knowledge, and the stakeholders involved in the management of the risk registers in the Trust under study.

More specifically, for each one of the risk management processes outlined in the risk management policy and procedures of the Trust (NHS Trust Directorate of Corporate Services 2003) (Figure 1-2): risk identification, risk assessment, risk treatment, and risk review, data revealed how they are actually carried out and how the risk registers are eventually developed and maintained. In the "cultural stream of analysis" (section 4.2), the rich picture (Figure 4-2) illustrates "*how risk management processes, outlined in the Trust's risk management policy and procedures, are carried out*" and "*how risk registers are developed and maintained in the course of risk management*" (sub-section 6.1.1). Further, the rich picture highlighted issues regarding the risk management processes and risk registers discussed in section 4.3. ("*what are the issues in the management of the risk registers*" in sub-section 6.1.1). These issues shaped the requirements for risk management (sub-section 4.4.1) and consequently the requirements for the proposed framework, and can be summarised as: there is no specific implementation plan for the risk management strategy, the process of risk identification is often erratic, there are different views in risk scoring, risk treatment is not structured, risk registers are not "live" documents, lessons learned is not a formalized and general practice, knowledge exists in different levels of the organisation, and communication throughout the Trust is limited.

In addition, collected data outline the groups of people involved in each of the risk management process during the development and maintenance of the risk registers in the Trust (associated with the questions "*who gets involved in the creation and management of the risk registers*" and "*what are the existing relationships among stakeholders in the management of the risk registers*" in sub-section 6.1.1). Specifically, "social system"

analysis (sub-section 4.2.2) discusses the roles, norms, and values of people in the directorate of healthcare governance and the other directorates that are involved in the lifecycle of the risk registers and "political system" analysis (sub-section 4.2.3) presents the contribution of power among the stakeholders involved in the risk register related risk management processes. Finally, the rich picture (Figure 4-2) illustrates communication among the different groups involved in risk management in the organisation under study, while Tables 4.2 and 4.3 present the requirements for communication among these groups. Further, section 4.3 discusses communication issues among the stakeholders of risk management (associated with "*what are the issues regarding the stakeholders and their relationships*" in sub-section 6.1.1) and sub-section 4.5.2 takes into account the whole frame of the relationships and behaviours in the course of risk management as presented in the cultural stream of analysis (section 4.2) to discuss how culturally feasible the proposed framework is.

The issues presented in detail in section 4.3 revealed the problematic situation around the management of the risk registers that is summarised in sub-section 4.4.1: inefficient planning, guidance, and support for the implementation of risk register related processes; various levels of awareness on the risk management policy and procedures and risk register related processes within the Trust; dispersed knowledge about risks and risk management among highly specialized healthcare professionals; and inadequate communication in the course of risk management throughout the whole Trust.

In the risk management literature, the AS/NZS 4360 standard (1999) that is followed by the Trust under study sheds light on the importance of communication in the course of risk management (discussed in sub-section 2.3.1). Accordingly, through the logic-based stream of analysis "a system, owned by the Trust and operated by the directorate of healthcare governance and the other directorates, to support and coordinate the communication of knowledge about risks and risk management, in order to improve the implementation of the risk management policy and procedures and, consequently, risk management strategy" (subsection 4.4.3) was outlined to guide the development of the final framework.

Regarding risk and risk management related knowledge, risk management literature discusses in length the perception of risk that influences the risk management processes. In short, it is argued that risk perception is biased due to incomplete knowledge on a situation, since it is usually based on existing judgements and assumptions that are shared by a group of people (Douglas and Wildavsky 1982; Pidgeon 1998; Rosa 2003; Smithson 1989) (discussed in sub-section 2.3.1). As discussed explicitly in sub-section 5.2.1, taking all of the above into account the development of a knowledge-based framework to support risk management processes stressed the importance of dealing with "incomplete knowledge" regarding risks and risk management in the organisation under study. The fact that knowledge was characterised as incomplete because it is dispersed within the organisation (sub-section 4.4.1) and not because it does not exist has triggered the search for mechanisms to communicate existing and required knowledge for risk management, in the knowledge management literature (associated with "*explore the area of knowledge management for way(s) to facilitate the management of risk registers*" in sub-section 6.1.1).

Numerous typologies of organisational knowledge and definitions that distinguish information from knowledge in the knowledge management literature were investigated (sub-section 2.2.1). In particular, Wiig (1999) defines information as "the facts and data organised to characterize a particular situation, condition, challenge, or opportunity" and knowledge as "the truths, beliefs, perspectives and concepts, judgments, and expectations, methodologies and know-how which is possessed by humans, agents, or other active entities and is used to receive information, recognize, identify, analyse, interpret, evaluate, synthesize, decide, plan, implement, monitor, and adapt". However, Wiig (2004) argues that both information and knowledge are required to outline and interpret a situation. Based on the definitions and the argument presented above, this research focused on the identification of information and knowledge that is considered essential for the development of the risk registers. In fact, for each of the risk management processes (i.e., risk identification, risk assessment, risk treatment, and risk review) Table 4.2 presents the required information and knowledge (linked to "*what are the*

information requirements for each risk management process" and "*what are the knowledge requirements for each risk management process*" in sub-section 6.1.1). Following, based on the issues regarding existing and required knowledge discussed in section 4.3, Table 4.4 outlines:

(a) the current form of required knowledge, as knowledge is categorised using the typology of tacit and explicit knowledge, presented in Nonaka and Takeuchi (1995) and Nonaka et al. (2001) and the case specific typology of knowledge presented in Chapter 4 (sub-section 4.4.1 and figure 4-3), i.e., risk management specific or operational area specific knowledge and directorate specific or Trust-wide knowledge (linked to "*what is the status of existing knowledge*" in sub-section 6.1.1), and

(b) how required knowledge is actually communicated throughout the Trust (linked to "*what are the issues regarding knowledge*" in sub-section 6.1.1).

Finally, taking into account the investigation of the risk management processes in relation to the risk registers, the stakeholders, and required information and knowledge, and based on the aforementioned categorisations of required knowledge, the researcher proposed a framework (Table 4.5) that associates each risk management process and the required knowledge with modes for knowledge conversion following Nonaka and Takeuchi (1995) and Nonaka et al. (2001) i.e., socialization, externalization, combination, and internalization and respective actions for the facilitation of the knowledge conversion modes. The following figure (Figure 6-2) summarises the proposed actions for the support of knowledge conversion from tacit to explicit and vice versa.

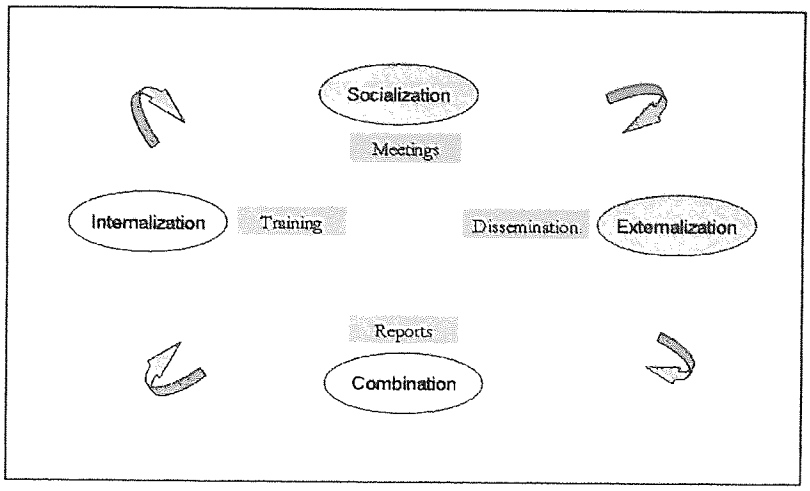


Figure 6-2. Proposed Changes

Further, the idiosyncrasies of healthcare organisations in general, and N.H.S. Trusts, in particular as indicated in the healthcare management literature (sub-section 2.2.8) create impediments for the transfer of knowledge. The nature of medical knowledge, i.e., fragmented and distributed and "preference for local knowledge" in decision making (Nicolini et al. 2008) urges collaboration between groups of highly specialised professionals and different levels in the hierarchy of healthcare organisations. However, it is "naïve to assume that by facilitating meetings between individuals the desired knowledge flows will simply occur" (Bate and Robert 2002). Further, the "blame" culture in the N.H.S. limits the willingness of people to share, especially when sharing refers to reporting of mistakes and mishaps.

6.1.3 Implications for Theory and Practice

This research has an impact on theory and practice. As aforementioned, literature review in the areas of knowledge management and risk management has shown that although knowledge is an important resource for risk management there is no reference as to how this resource can be exploited. Further, there is no explicit reference on risk management in the knowledge management literature, even though risk management is crucial for organisations and is a knowledge-intensive process.

The study proposes a framework that identifies the relationships between the areas of risk management and knowledge management and further includes healthcare management with reference to those two areas of interest. As discussed in the previous chapter (section 5.3) this study:

- Addresses the issue of incomplete knowledge in risk management by setting the foundations for communication of knowledge and consequently formulating more comprehensive views of actual and potential risks, i.e., risk that have or might occur,

- Addresses the issue of knowledge conversion, as presented in the knowledge management literature, from a healthcare management point of view that encompasses the idiosyncrasies of highly specialised and powerful networks of professionals.

- Creates a risk management specific and business-process oriented typology for knowledge to associate knowledge processes more precisely with business processes (in this case risk management processes).

- Describes in detail the steps for the development of a framework that shows the relationship between knowledge, risk management processes and knowledge management through the use of knowledge conversion modes to facilitate knowledge communication in the course of risk management.

In practice, the proposed framework can be used (section 5.4):

- By the organisation under study to support the implementation of their risk management policy and procedures, since it is based on the organisation's "perceived reality" and addresses the issues of both reactive and proactive risk management.

- In the context of healthcare management, in the N.H.S., for the support of risk management programmes by knowledge management, since it is based on the risk management standard adopted throughout the N.H.S.

- In the context of risk management for healthcare organisations that employ any risk management standard, as a roadmap for the alignment of risk management processes with SECI conversion modes.

- In the context of (public) policy making for healthcare organisations, as a guiding principle behind implementation plans for risk management in healthcare organisations; principle that sheds light on the importance of knowledge in risk management.

6.2 Reflection on the Research

This research started with the objective to investigate in depth the risk management processes employed for the risk registers in the healthcare organisation under study in order to discover how the development and management of the risk registers can be improved by the appropriate use of risk related knowledge.

Going through the aftermath of the study, besides the obvious effort to identify the issues in the way risk registers operate and align them with existing notions, theories, models, or methods from the knowledge management literature, the hidden challenge that served also as the cornerstone for the proposed framework was the awarding of a pragmatic identity to risk management and the risk registers.

Actually, in the risk management literature, the listings of standards and processes were valuable as they provide structure and make the identification of elements that influence risk management, in this case knowledge, easier. Moreover, existing documentation of the risk registers accentuated the notion of a structured file that is developed by following certain steps, i.e. processes. However, the human element (either individuals or groups) remained concealed, in the sense that obviously it is

people who identify, evaluate, and treat risks but there was no systematic monitoring of how people use what is known regarding risks to manage risks.

Based on these thoughts, risk registers were not viewed as just a log of risks, risk management processes were not viewed just as steps to be followed, and risk management was viewed as a complex decision making practice. The role of knowledge for risk registers, risk management processes, and risk management was considered as rather seminal. Eventually, people in the organisation that possess risk and risk management related knowledge and interact with each other in order to circulate this knowledge and combine it with knowledge already embedded in reports and documents are considered as the element that determines the comprehensiveness of the risk registers and the effectiveness of risk management.

By viewing the risk registers as the (virtual) place where risk and risk management knowledge "meets" and the interaction among the stakeholders of risk management that possess or have access to complementary or contradictive risk related knowledge as the decisive factor for more informed risk management, the researcher searched for a method to exploit and link knowledge existing in different forms through social interaction. As already discussed, the SECI conversion modes shed light on (a) specific characteristics of knowledge that can practically divide existing knowledge into groups, i.e. explicit and tacit and (b) different types of social interaction, i.e. between individuals, between individuals and groups, among groups and accentuates the significance of knowledge moving from an individual to the group level.

The researcher concludes that in the organisation under study, existing risk and risk management related knowledge has to be augmented through its conversion in formats exploitable by the risk management processes. It is the evolution of knowledge that generates new perspectives and more informed decisions.

6.3 Limitations of the Research

As discussed in the previous section, this research contributes in existing theories by bridging a gap between risk management that requires dealing with incomplete knowledge and knowledge management that can support "dealing with incomplete knowledge". The research also has certain limitations, mainly, stemming from the fact that it is based on a single case study, since the aim of the research was in-depth investigation of the risk management related situation and the issues in a healthcare organisation and development of a framework that would handle those specific, i.e., healthcare related, issues by adapting existing generic tools and/ or methods from the area of knowledge management.

First, evidence is derived from a N.H.S. Trust and subsequently the proposed framework applies in the context of N.H.S. Trusts and especially acute (hospital) Trusts. In general, the particular organisation under study, among others in the N.H.S., has characteristics that differentiate it regarding risk management, for example, different level of general awareness of risk management, different level of maturity of the risk management programme. Even though the AS/NZS 4360 risk management standard (1999), that outlines the risk management processes around which the proposed framework is structured, applies for all types of organisations it is the type(s) of knowledge that make the framework specific. Further, the actions to facilitate the knowledge conversion modes have been proposed after taking into account the particular characteristics of healthcare organisations and especially of N.H.S. Trusts.

Second, the research covers the management of risk registers rather than any other (possible) area of risk management in an organisation. Since risk registers are adopted as a tool by a significant, in terms of size, organisation as the N.H.S. and they actually include the risks, potential and actual, for the organisation, the study can be applied in numerous other situations, but possible not outside the N.H.S. or other healthcare or any other organisation that uses risk registers. For the moment,

as mentioned in sub-section 2.3.1, it is the U.K. public sector that uses widely risk registers as the key tool for risk management.

Third, the research is conducted in an N.H.S. Trust that follows the principles of the AS/NZS 4360 risk management standard (1999) and, as already mentioned the proposed framework follows the structure of the risk management processes of this standard. In that sense, evidence gathered and results presented are valid as long as the N.H.S. Trusts continue to base their risk management policy and procedures on this particular standard.

Fourth, the proposed framework relied on evidence gathered from a certain group of informants and data analysis is based on the researcher's reflection on the perceptions of these members of the organisation regarding risk management. Hence, it is always possible that other interviewees might have provided other views. However, the final set of interviewees covered a wide range of directorates (both clinical and corporate) and the whole group of people in the directorate of healthcare governance involved with the risk registers.

Finally, following the principles of S.S.M., the proposed framework complies with existing structures and in general with the existing (perceived) reality in the organisation. In essence, the proposed changes do not, radically, challenge current political systems. For the context of the study, i.e., the N.H.S., this was both feasible and desirable. As discussed in sub-section 2.3.2 the numerous changes in the N.H.S. over the years and the negative perception over systems imposed by management indicate the need to work through the existing culture, rather than trying to radically change it.

6.4 Further Research

6.4.1 Further Research in the Organisation under Study

- In the future, the results of this study could be tested at the organisation under study, preferably as a pilot project, i.e., following a set of risks from the moment they enter the risk register to the time they can be used for proactive risk management. It is recommended to follow a qualitative approach and capture the perceptions of people when applying the proposed framework. Further, a quantitative approach can be used, as well, after setting measurements of success for the risk register, e.g., measurement of risk reduction in the risk registers, measurement of identification of potential risks out of already existing ones, measurement of increased communication within the Trust, like indicators of decrease of cross-functional or similar risks and application of similar actions for similar risks in different directorates.

- From another viewpoint, the proposed framework could be tested in parts of the organisation, i.e. directorates, and then compared to observe whether in the Trust certain directorates favour certain modes of SECI.

6.4.2 Further Research outside the Organisation

- The proposed framework can be tested for use in other settings, like healthcare organisations in the private sector, in the U.K. and other countries. Organisations in the U.K. public sector that use risk registers would be ideal candidates. A comparison among multiple case studies would reveal interesting observations regarding SECI for the risk registers.

- For healthcare organisations outside the N.H.S. that do not use the risk register, the research process can be followed with starting point the risk management processes followed by these organisations. A comparison between the types of knowledge and the applicability of SECI would also be of interest.

- In general, the current research encourages the employment of SECI outside the areas of innovation and new product development and in other cultures than the Japanese. In the opinion of the researcher the SECI modes do not refer just to creation of new knowledge, but to knowledge transfer as well.

List of References

Ackoff, R.L. (1989), "From data to wisdom," Journal of Applied Systems Analysis, 16, 3-9.

Adler, P.S. (1995), "Comment on I.Nonaka: managing innovation as an organisational knowledge creation process," in Techology Management and Corporate Strategies: A Tricontinental Perspective, J. Allouche and G. Pogorel, Eds. Amsterdam: Elsevier.

Alavi, M. and D.E. Leidner (2001), "Knowledge management and knowledge management systems: conceptual foundations and research issues," MIS Quarterly, 25 (107-136).

Argyris, C. and D. A. Schon (1996), Organisational learning: Vol. 2. Theory, method, and practice. Reading, Mass.: Addison-Wesley.

---- (1978), Organizational learning. Reading: Addison-Wesley.

Arrow, K.J. (1969), "Classification notes on the production and transmission of technical knowledge," American Economic Review, Papers and Proceedings (52), 29-35.

AS/NZS 4360 (1999), Risk Management Standards Australia/ Standards New Zealand.

Ayas, K. and N. Zenuik (2001), "Project-based learning: building communities of reflective practitioners," Management Learning, 32, 61-76.

Badaracco, J.L. (1991), The knowledge link: how firms compete through strategic alliances. Boston, MA: Harvard Business School Press.

Bate, S.P. and G. Robert (2002), "Knowledge Management and Communities of Practice in the private sector: Lessons for modernizing the National Health Service in England and Wales," Public Adminstration, 80 (4), 643-63.

Beckman, J.T. (1999), "The current state of knowledge management," in Knowledge Management Handbook, J. Liebowitz, Ed.: CRC Press LLC.

Bhatt, G.D. (2001), "Knowledge management in organisations," Journal of Knowledge Management, 5 (1), 68-75.

Blackler, F. (1995), "Knowledge, knowledge work and organizations: an overview and interpretation," Organization Studies, 16 (6), 1021-46.

Boland, R. and R. Tenkasi (1995), "Perspective making and perspective taking in communities of knowing," Organization Science, 6 (4), 350-63.

Bose, R. (2003), "Knowledge management-enabled health care management systems: capabilities, infrastructure, and decision-making," Expert Systems with Applications, 24, 59-71.

Boyd, O. and N. Jackson (2005), "Clinical review: How is risk defined in high-risk surgical patient management?," Critical Care, 9 (4), 390-96.

Bresnen, M., L. Edelman, S. Newell, H. Scarbrough, and J. Swan (2003), "Social practices and the management of knowledge in project environments," International Journal of Project Management, 21, 157-66.

Brown, J. S. and P. Duguid (1991), "Organizational Learning and Communities-of-Practice: Toward a Unified View of Working, Learning,and Innovation," Organization Science, 2 (1), 40-57.

Brown, J.S. and P. Duguid (1998), "Organizing knowledge," California Management Review, 40 (3), 90-111.

Brown, R. (1981), Social Psychology. New York: The Free Press.

Bruner, J. S. (1990), Acts of Meaning. Cambridge: MA: Harvard University Press.

---- (1986), Actual Minds, Possible Worlds. Cambridge: MA: Harvard University Press.

Bryman, A. (1988), Quantity and quality in social research. New York: Routledge.

Burrell, G. (1983), "Systems thinking, systems practice: a review," Journal of Applied Systems Analysis, 10, 121.

Burrell, G. and G. Morgan (1979), Sociological paradigms and organisational analysis. Hants: Ashgate Publishing Ltd.

Cabinet Office (2008), "National Risk Register."

Cabrera, A. and E.F. Cabrera (2002), "Knowledge-sharing dilemmas," Organization Studies, 25 (5), 687-710.

Carmines, E.G. and R.A. Zeller (1979), Reliability and validity assessment. U.S.A.: Sage Publications.

Chambers, R. and D. Wall (2000), Teaching made easy: a manual for health professionals. Oxford: Radcliffe Medical Press.

Chapman, C.B. and S. Ward (1997), Project risk management: processes, techniques, and insights. West Sussex, England: John Wiley & Sons Ltd.

Checkland, P. (1981), Systems thinking, systems practice. Chichester: J. Wiley.

Checkland, P. and A. Casar (1986), "Vicker's concept of an appreciative system: a systemic account," Journal of Applied Systems Analysis, 13, 3-17.

Checkland, P. and S. Holwell (1998), "Action research: Its nature and validity," Systemic Practice and Action Research, 11 (1), 9-21.

Checkland, P. and J. Poulter (2006), Learning for action: a short definite account of SSM and its use for practitioners, teachers and students: John Wiley & Sons Ltd.

Checkland, P. and J. Scholes (1999), Soft systems methodology in action. Great Britain: John Wiley & Sons, Ltd.

Checkland, P. and M. Winter (2006), "Process and content: two ways of using SSM," Journal of the Operational Research Society, 57, 1435-41.

Chen, S., Y. Duan, J.S. Edwards, and B. Lehaney (2006), "Toward understanding inter-organizational knowledge transfer needs in SMEs: insight from a UK investigation," Journal of Knowledge Management, 10 (3), 6-23.

Choi, B. and H. Lee (2002), "Knowledge management strategy and its link to knowledge creation process," Expert Systems with Applications, 23 (2), 173-87.

Choo, C.W. (2001), "The knowing organization as learning organization," Education + Training, 43 (4/5), 197±205.

Chou, S. and M. He (2004), "Knowledge management: the distinctive roles of knowledge assets in facilitating knowledge creation," Journal of Information Science, 30 (2), 146-64.

Cohen, M.D. and P. Bacdayan (1994), "Organizational routines are stored as procedural memory: Evidence from a laboratory study," Organization Science, 5, 554-68.

Cohen, W.M. and D.A. Levinthal (1990), "Absorptive capacity: a new perspective on learning and innovation," Administrative Science Quarterly, 35 (1), 128-52.

Committee on Financial Aspects of Corporate Governance (1992), "The financial aspects of corporate governance," The Committee on the Financial Aspects of Corporate Governance and Gee and Co. Ltd.

Controls Assurance Support Unit, University of Keele (2002), Making it happen: a guide for risk managers on how to populate a risk register.

Cook, S.D.N. and J.S. Brown (1999), "Bridging epistemologies: the generative dance between organizational and knowledge and organizational knowing," Organization Science, 190, 381-400.

Creswell, J.W. (1998), Qualitative inquiry and research design: choosing among five traditions. U.S.A.: Sage Publications, Inc.

---- (1994), Research design: Qualitative & Quantitative Approaches. U.S.A.: Sage Publications, Inc.

Croasdell, D.T. (2001), "IT's role in organisational memory and learning," Information Systems Management, 18 (1), 1-4.

Currie, G. and O. Suhomlinova (2006), "The impact of institutional forces upon knowledge sharing in the UK National Health Service: the triumph of professional power and the inconsistency of policy," Public Adminstration, 84 (1), 1-30.

Cyert, R.M. and J.G. March (1963), A behavioural theory of the firm. Englewood Cliffs, N.J.: Prentice Hall.

Czarniawska-Joerges, B. (1992), Exploring Complex Organizations. Newbury Park: CA: Sage Publications, Inc.

Daft, R.L. and K.E. Weick (1984), "Toward a model of organisations as interpretive systems," Academy of Management Review, 9, 284-95.

Davenport, T. H. and L. Prusak (1998), Working knowledge. Cambridge: MA: Harvard Business School Press.

Delanty, G. (1997), Social science: beyond constructivism and realism. Minneapolis: University of Minnesota Press.

Demsetz, H. (1991), "The theory of the firm revisited," in The Nature of the Firm, Williamson and Winter, Eds. New York: Oxford University Press.

Department of Health (1997), "Corporate governance in the NHS: controls assurance statements."

---- (1998), "A first class service: quality in the new NHS," Health Service Circular, 113.

---- (1999a), "Governance in the new NHS: controls assurance statements 1999/2000: risk management and organisational controls."

---- (2000a), "Governance in the new NHS: controls assurance statements 2000/2001."

---- (2006), "Integrated governance handbook: a handbook for executives and non-executives in healthcare organisations."

---- (1999b), "NHS Executive. Clinical Governance: Quality in the New NHS." London.

---- (2000b), "The NHS plan - implementing the performance improvement agenda," Department of Health (Ed.).

---- (2000a), "The NHS plan: a plan for investment, a plan for reform," Department of Health (Ed.).

---- (2000b), "An organisation with a memory: Report of an expert group on learning from adverse events in the NHS." London: The Stationery Office.

DoH (1997), "The new NHS-modern and dependable." London: The Stationery Office.

Donabedian, A. (1980), The definition of quality and approaches to its assessment. Michigan: Health Administration Press.

Donaldson, A., E. Lank, and J. Maher (2005), "Making the invisible visible: how a voluntary organization is learning from its work with groups and communities," Journal of Change Management, 5 (2), 191-206.

Douglas, M. and A. Wildavsky (1982), Risk and culture: an essay on the selection of technical and environmental dangers. Berkley: University of California Press.

Dutton, J.E., J.M. Dukerich, and C.V. Harquail (1994), "Organizational images and member identification," Administrative Science Quarterly, 39 (2), 239-63.

Dyer, J.H. and K. Nobeoka (2000), "Creating and managing a high-performance knowledge-sharing network: the Toyota case," Strategic Management Journal, 21, 345-67.

Easterby-Smith, M., R. Thorpe, and A. Lowe (1991), Management research: an introduction. G.B.: SAGE Publications Ltd.

Edwards, J.S., M.J. Hall, and D. Shaw (2005), "Proposing a systems vision of knowledge management in emergency care," Journal of the Operational Research Society, 56, 180-92.

Eisenhardt, K.M. (1989), "Building theories from case study research," Academy of Management Review, 14 (4), 532-50.

Fiol, C.M. and M.A. Lyles (1985), "Organizational learning," Academy of Management Review, 10 (4), 803-13.

Furlong, G.P. and L. Johnson (2003), "Community of practice and metacapabilities," Knowledge Management Research and Practice, 1, 102-12.

Gabbay, J. and A. Le May (2004), "Evidence based guidelines or collectively constructed 'mindlines'? Ethnographic study of knowledge management in primary care," British Medical Journal, 329, 1013–17.

Gann, D.M. and A. Salter (2000), "Innovation in project-based service-enhanced firms: the construction of complex products and systems," Research Policy, 29, 955-72.

Gill, J. and P. Johnson (1997), Research methods for managers. G.B.: Paul Chapman Publishing.

Glisby, M. and N. Holden (2003), "Contextual constraints in knowledge management theory: the cultural embeddedness of Nonaka's knowledge-creating company," Knowledge and Process Management, 10 (1), 29-36.

Gourlay, S. (2000), "On some cracks in the "engine" of knowledge creation: a conceptual critique of Nonaka and Takeuchi's (1995) model," British Academy of Management Conference, Edinburgh.

Grant, M.R. (2001), "The knowledge-based view of the firm," in The Strategic Management of Intellectual Capital and Organizational Knowledge: A Collection of Readings, N. Bontis and C.W. Choo, Eds. New York: Oxford University Press.

---- (1997), "The knowledge-based view of the firm: implications for management practice," Long Range Planning, 30 (3), 450-54.

---- (1996), "Toward a knowledge-based theory of the firm," Strategic Management Journal, 17 (Winter 1996), 109-22.

Grant, M.R. and Ch. Baden-Fuller (1995), "A knowledge-based theory of inter-firm collaboration," Academy of Management Journal, Best Papers Proceedings.

Grover, V. and T.H. Davenport (2001), "General perspectiveson knowledge management: Fostering a research agenda," Journal of Management Information Systems, 18 (1), 5-21.

Gummesson, E. (2000), Qualitative methods in management research: Sage Publications Inc.

Hackett, M., R. Lilford, and J. Jordan (1999), "Clinical governance: culture, leadership, and power- the key to changing attitudes and behaviours in trusts," International Journal of Healthcare Quality Assurance, 12 (3), 98-104.

Hansen, M.T., N. Nohria, and T. Tierney (1999), "What's your strategy for managing knowledge?," Harvard Business Review, 77 (2), p. 106-16.

Hedberg, B. (1981), "How organizations learn and unlearn?," in Handbook of Organizational Design, P.C. Nystrom and W.H. Starbuck, Eds. London: Oxford University Press.

Henwood, K., N. Pidgeon, S. Sarre, P. Simmons, and N. Smith (2008), "Risk, framing and everyday life: Epistemological and methodological reflections from three socio-cultural projects," Health, Risk & Society, 10 (5), 421-38.

Hillson, D. (2002), "Extending the risk process to manage opportunities," International Journal of Project Management, 20, 235-40.

HM Treasury (2003), "The risk programme: Improving government's risk handling," Risk Support Team (Ed.).

Holsapple, C.W. and K. D. Joshi (2000), "An investigation of factors that influence the management of knowledge in organizations," Journal of Strategic Information Systems, 9, 235-61.

Irvine, D. (1997), "The performance of doctors: professionalism and self-regulation in a changing world," British Medical Journal, 314 (24 May).

Jackson, M.C. (2000), Systems approaches to management. New York: Kluwer Academic/ Plenum Publishers.

Jacobs, B. (2004), "Using Soft Systems Methodology for performance improvement and organisational change in the English National Health Service," Journal of Contingencies and Crisis Management, 12 (4), 138-49.

Jasimuddin, S.M., J.H. Klein, and c. Connell (2005), "The paradox of using tacit and explicit knowledge Strategies to face dilemmas," Management Decision, 43 (1), 102-12.

Kasperson, J.X., R.E. Kasperson, N. Pidgeon, and P. Slovic (2003), "The social amplification of risk: assessing fifteen years of research and theory," in The Social Amplification of Risk, N. Pidgeon and R.E. Kasperson and P. Slovic, Eds.: Cambridge Press.

Kasperson, R.E., O. Renn, P. Slovic, H.S. Brown, J. Emel, R. Goble, J.X. Kasperson, and S. Ratick (1988), "The social amplification of risk: a conceptual framework," Risk Analysis, 8, 177-87.

Kidd, J.B. (1998), "Knowledge creation in Japanese manufacturing companies in Italy: reflection upon organisational learning," Management Learning, 29 (2), 131-46.

Kirk, J. and M. L. Miller (1986), Reliability and validity in qualitative research: Sage Publications Inc.

Kogut, B. and U. Zander (1992), "Knowledge of the firm, combinative capabilities, and the replication of technology," Organization Science, 3 (3), 383-97.

---- (1996), "What firms do? Coordination, identity, and learning," Organization Science, 7 (5), 502-18.

Krimsky, S. and D. Golding (1992), Theories of risk. New York: Praeger.

Ladik, M.D. and W.D. Stewart (2008), "The contribution continuum," Journal of the Academy of Marketing Science, 36, 157-65.

Lave, J. and E. Wenger (1993), Situated Learning: Legitimate Peripheral Participation. New York: NY: Cambridge University Press.

Lehner, F. and R.K. Maier (2000), "How can organizational memory theories contribute to organizational memory systems?," Information Systems Frontiers, 2 (3/4), 277-98.

Leonard-Barton, D. (1995), Wellsprings of knowledge: building and sustaining the sources of innovation. Boston, MA: Harvard Business School Press.

Levitt, B. and J.G. March (1988), "Organizational learning," Annual Review of Sociology, 14, 319-40.

Liebowitz, J. (2001), Knowledge management: learning from knowledge engineering. Florida, U.S.A.: CRC Press LLC.

Liebowitz, J. and J.T. Beckman (1998), Knowledge organisations: what every manager should know. Boca Raton, FL: CRC Press.

Liley, R. and P. Lambden (1999), Making sense of risk management. Oxford: Radcliffe Medical Press.

Lowenstein, G.F., E.U. Weber, and C.K. Hsee (2001), "Risk as feelings," Psychological bulletin, 127, 267–86.

Maier, G.W., C. Parnge, and L. von Rosenstiel (2001), "Psychological Perspectives of Organizational Learning," in Handbook of Organizational Learning and Knowledge, M. Dierkes and A. Berthoin Antal and J. Child and I. Nonaka, Eds. New York: Oxford University Press.

Marquand, P. and E. Miller (1997), "An introduction to clinical risk management," in The Healthcare Management Handbook, H. Kogan K. Holdaway, Ed.: The Institute of Health Services Management.

Marquardt, M. (1996), Building the learning organisation. New York: Mc-Graw Hill.

Meyerson, D.E. (1994), "Interpretations of stress in institutions: The cultural production of ambiguity and burnout," Administrative Science Quarterly, 39, 628–52.

Mintzberg, H. (1979), "An emerging strategy of "direct" research," Administrative Science Quarterly, 24, 580-89.

MoD(PE)-DPP(PM), ref. DDPP(PM)/2/1/12 (1991), "Risk management in defence procurement." Whitehall, London: Ministry of Defence, Directorate of Procurement Policy (Project Management).

Moorman, C. and A.S. Miner (1997), "The impact of organizational memory on new product performance and creativity," Journal of Marketing Research, 34, 91-106.

Nelson, R. and S.G. Winter (1997), "An evolutionary theory of economic change," in Resources, Firms, and Strategies: A reader in the Resource-Based Perspective, N.J. Foss, Ed.: Oxford University Press.

Newell, S., L. Edelman, H. Scarbrough, J. Swan, and M. Bresnen (2003), ""Best practice" development and transfer in the NHS: the importance of process as well as product knowledge," Health Services Management Research, 16 (1), 1-12.

NHS Trust (Teaching) (2003), "Risk Management Strategy 2003/06."

NHS Trust Directorate of Corporate Services (2003), "Risk management policy and procedures."

Nicolini, D., J. Powell, P. Conville, and L. Martinez-Solano (2008), "Managing knowledge in the healthcare sector. A review," International Journal of Management Reviews, 10 (3), 245-63.

Nishida, K. (1970), Fundamental problems to philosophy: the world of action and the dialectical world (Dilworth D., Trans.). Tokyo: Sophia University.

Nonaka, I. (1994), "A dynamic theory of organizational knowledge creation," Organization Science, 5 (1), 14-37.

Nonaka, I. and H. Takeuchi (1995), The knowledge-creating company. New York: Oxford University Press.

Nonaka, I. and R. Toyama (2003), "The knowledge-creating theory revisited: knowledge creation as a synthesizing process," Knowledge Management Research & Practice, 1, 2-10.

Nonaka, I., R. Toyama, and P. Byosiere (2001), "A theory of organizational knowledge creation: understanding the dynamic process of creating knowledge," in Handbook of Organizational Learning and Knowledge, M. Dierkes and A. Berthoin Antal and J. Child and I. Nonaka, Eds. New York: Oxford University Press.

Nonaka, I., R. Toyama, and N. Konno (2000), "SECI, ba and leadership: a unified model of dynamic knowledge creation," Long Range Planning, 33, 5-34.

O'Dell, C. (1996), "A correct review of knowledge management best practice," in Conference on knowledge management and the transfer of best practices, Business Intelligence (Ed.). London, UK.

Orzano, A.J., C.R. McInerney, D. Scharf, A.F. Tallia, and B.F. Crabtree (2008), "A knowledge management model: implications for enhancing quality in health care," Journal of the American Society for Information Science and Technology, 59 (3), 489-505.

Patching, D. (1990), Practical soft systems analysis. Great Britain: Pearsons Education Ltd.

Pautzke, G. (1989), Die evolution der organisatorischen Wissenbasis. Bausteine zu einer Theorie des organisatorischen Lemens. Munich.

Pawlowsky, P. (2001), "The treatment of organizational learning in management science," in Handbook of Organizational Learning and Knowledge, M. Dierkes and A. Berthoin Antal and J. Child and I. Nonaka, Eds. New York: Oxford University Press.

Pidgeon, N. (1998), "Safety culture: key theoretical issues," Work and Stress, 12 (3), 202-16.

Pidgeon, N., P. Simmons, S. Sarre, K. Henwood, and N. Smith (2008), "The ethics of socio-cultural risk research," Health, Risk & Society, 10 (4), 321-29.

Polanyi, M. (1966), The tacit dimension. New York: Doubleday and Company Inc.

Popper, K. (1959), The logic of scientific discovery (2nd ed.). London: Hutchinson.

Probst, G., S. Raub, and K. Rombhardt (2000), Managing knowledge building blocks for success: Wiley.

Project Management Institute (2000), Guide to the Project Management Body of Knowledge (PMBoK).

Prusak, L. (2005), "Storytelling in organisations," in Storytelling in Organisations: Why Storytelling is Transforming 21st Century Organisations and Management, J.S. Brown and S. Denning and K. Groh and L. Prusak, Eds. Burlington, MA: Elsevier Butterworth-Heinemann.

Quinn, J.B., P. Anderson, and S. Finkelstein (1996), "Leveraging intellect," Academy of Management Executive, 10 (3), 7-26.

Rice, L.J. and S.B. Rice (2005), "The applicability of the SECI model to multi-organisational endeavours: an integrative review," International Journal of Organisational Behaviour, 9 (8), 671-82.

Rosa, E.A. (2003), "The logical structure of the social amplification of risk framework (SARF): metatheoretical foundations and policy implications," in N.F. Pidgeon and R.K. Kasperson and P. Slovic, Eds. Cambridge: Cambridge University Press.

Rowley, J. (2000), "From learning organization to knowledge entrepreneur," Journal of Knowledge Management, 4 (1), 7-15.

Ruggles, R. (1998), "The state of the notion: knowledge management in practice," California Management Review, 40 (3).

---- (1997), Tools for knowledge management: an introduction. Cambridge, MA: Butterworth-Heinemann.

Sandars, J. (2004), "Knowledge management: something old, something new," Work Based Learning in Primary Care, 2 (1), 9-17.

Scally, G. and L. J. Donaldson (1998), "Clinical governance and the drive for quality improvement in the new NHS in England," British Medical Journal, 317 (July), 61-65.

Schimmel, R. and D.R. Muntslag (2009), "Learning barriers: a framework for the examination of structural impediments to organisational change," Human Resource Management, 48 (3), 399–416.

Schon, D. A. (1983), The reflective practitioner: New York: Basic Books.

Senge, P. (1990), The fifth discipline. New York: Doubleday.

Shannon, C.E. and W. Weaver (1949), The mathematical theory of communication. Chicago: Illinois: University of Illinois Press.

Skyrme, D. (1999), Knowledge networking: creating the collaborative enterprise.

Slovic, P. (1987), "Perception of risk," Science, 236, 280-85.

---- (2001), "The risk game," Journal of Hazardous Materials, 86, 17–24.

Smithson, M. (1989), Ignorance and uncertainty: emerging paradigms. Berlin: Springer-Verlag.

Spender, J.C. (1996), "Making knowledge the basis of a dynamic theory of the firm," Strategic Management Journal, 17 (Winter Special Issue), 45.

---- (1994), "Organizational knowledge, collective practice and Penrose rents," International Business Review, 3 (4), 357-67.

Spender, J-C. (1992), "Limits to learning from the West: how Western management advice may prove limited in Eastern Europe," International Executive, 34 (5), 389-410.

---- (2008), "Organizational learning and knowledge management: whence and whither?," Management Learning, 39 (2), 159-76.

Stake, R. (1995), "Case studies," in The handbook of Qualitative Research, Lincoln Y. S. Denzin N. K., Ed. 2000 ed.

Stein, E.W. (1989), "Organizational mamory: socio-technical framework and empirical research," PhD dissertation.

---- (1995), "Organizational memory: review of concepts and recommendations for management," International Journal of Information Management, 15 (2), 17-32.

Szulanski, G. (1996), "Exploring internal stickiness: impediments to the transfer of best practices within the firm," Strategic Management Journal, 17 (Winter special issue), 27-43.

---- (2000), "The process of knowledge transfer: A diachronic analysis of stickiness," Organizational Behaviour and Human Decision Processes, 82 (1), 9-27.

---- (1995), "Unpacking stickiness: an empirical imnvestigation of the barriers to transfer best practice inside the firm," Academy of Management Journal, 437.

Tagliaventi, M.R. and E. Mattarelli (2006), "The role of networks of practice, value sharing, and operational proximity in knowledge flows between professional groups," Human Relations, 59, 291-319.

(Teaching), NHS Trust (2003), "Clinical Governance and Controls Assurance Strategy 2003/2006."

Teece, D. J. (2003), "Knowledge and competence as strategic assets," in Handbook on Knowledge Management, C.W. Holsapple, Ed. Vol. 1. Berlin: Springer-Verlag.

Thomas, A. and M. Lockett (1979), "Marxism and systems research: values in practical action," in Improving the human condition, R.F. Ericson, Ed. Louisville: SGSR.

Thompson, P.B. and W.R. Dean (1996), "Competing conceptions of risk," Risk: Health, Safety and Environment, 7, 361-84.

TSO (The Stationery Office) (2009), PRINCE 2: Managing successful projects with PRINCE2. U.K.

Tsoukas, H. (2003), "Do we really understand tacit knowledge?," in The handbook of Handbook of Organizational Learning and Knowledge, M. M. Easterby-Smith and M.A. Lyles, Eds.: Blackwell.

---- (1996), "The Firm as a Distributed Knowledge System: A Constructionist Approach," Strategic Management Journal, 17, 11-25.

Van de Ven, A.H., A. L. Delbecq, and R. Koenig (1976), "Determinants of coordination modes within organizations," American Sociological Review, 41, 322-38.

Van der Spek, R. and A. Spijkervet (1997), "Knowledge management: dealing intelligently with knowledge," in Knowledge Management and its Integrative Elements, J. Liebowitz and L. Wilcox, Eds. Boca Raton, FL: CRC Press.

Van Heijst, G., R. Van der Spek, and E. Kruizinga (1997), "Corporate memories as a tool for knowledge management," Expert Systems with Applications, 13 (1), 41-54.

---- (1998), "The lessons learned cycle," in Information Technology for Knowledge Management, R. Pareschi U. M. Borghoff, Ed.: Springer-Verlag.

Vickers, G. (1965), The art of judgment. London: Chapman and Hall.

Vincent, C., S. Taylor-Adams, E.J. Chapman, D. Hewett, S. Prior, P. Strange, and A. Tizzard (2000), "How to investigate and analyse clinical incidents:Clinical Risk Unit and Association of Litigation and Risk Management protocol," British Medical Journal, 320, 777-81.

von Bertalanffy, L. (1968), General systems theory. Harmondsworth: Penguin.

---- (1950), "The theory of open systems in physics and biology," Science, 3.

Walsh, J.P. and G.R. Ungson (1991), "Organisational memory," Academy of Management Review, 16 (1), 57-91.

Ward, S. and C. Chapman (2003), "Transforming project risk management into project uncertainty management," International Journal of Project Management, 21, 97-105.

Webber, A.M. (1993), "What's so new about the new economy?," Harvard Business Review (January-February 1993), 28.

Weir, D. and N. Hutchings (2003), "Cultural embeddedness and contextual constraints: knowledge sharing in Chinese and Arab cultures," Knowledge and Process Management, 12 (2), 89-98.

Wenger, E. (1998a), Communities of practice: learning, meaning, and identity. U.K.: Cambridge University Press.

---- (1998b), "Communities of practice: the key to knowledge strategy," The Journal of the Institute for Knowledge Management, 1 (1), 48-63.

Wenger, E. and W.M. Snyder (2000), "Communities of practice: the organisational frontier," Harvard Business Review, Jan-Feb, 139.

Wiener, N. (1950), The human use of human beings. London: Eyre and Spottiswoode.

Wiig, K. (1999), "Introducing knowledge management into the enterprise," in Knowledge Management Handbook, J. Liebowitz, Ed.: CRC Press LLC.

---- (1993a), Knowledge management foundations. Arlington, TX: Schema Press.

---- (1995), Knowledge management methods: Practical approaches to managing knowledge. Arlington, Texas: Schema Press Ltd.

---- (2004), People-focused knowledge management: how effective decision making leads to corporate success. Burlington, MA: Elsevier Inc.

Wiig, K.M. (1997), "Knowledge management: where did it come from and where will it go?," Expert Systems with Applications, 13 (1), 1-14.

Wiig, K.M., R. De Hoog, and R. Van der Spek (1997), "Supporting knowledge management: a selection of methods and techniques," Expert Systems with Applications, 13 (1), 15-27.

Wilson, B. (2001), Soft Systems Methodology: conceptual model building and its contribution. Great Britain: John Wiley and Sons Ltd.

Winograd, T. and F. Flores (1987), Understanding computers and cognition. Reading, MA: Addison-Wesley.

Winter, S. G. (1986), "The research program of the behavioral theory of the firm: Orthodox critique and evolutionary perspective," in Handbook of Behavioral Economics, B. Gilad and S. Kaish, Eds. Vol. A. Greenwich, CT: JAI Press.

Winter, S.G. (1994), "Organizing for continuous improvement: evolutionary theory meets the quality revolution," in Evolutionary dynamics of organizations, J.A.C. Baum and Singh J.V., Eds. New York: Oxford University Press.

Wyatt, J.C. (2001), "Management of explicit and tacit knowledge," Journal of the Royal Society of Medicine, 94, 6-9.

Wynne, B. (1989), "Frameworks of rationality in risk management: towards the testing of naive sociology," in Environmental threats: reception, analysis, and management, J. Brown, Ed. London: Belhaven.

Yin, R. K. (2003), Case study research: design and methods (Third ed.): Sage Publications Inc.

Zack, M. H. (1999), "Managing codified knowledge," MIT Sloan Management Review, 40 (4), 45-58.

Appendix A. Objectives of the Risk Management Strategy of the Trust

The Strategy is designed to deliver a number of key objectives. These include:

- The Trust will ensure that Risk Management principles, processes and systems are embedded through the Trust Board and within the organisation.

- There will be an accountability framework with clear lines of responsibility for all staff from Board to Practitioner levels.

- The Trust will establish a robust infrastructure of delivery of risk management at specialty level through directorate clinical governance teams, supported by a dedicated specialist Clinical Governance Support Unit.

- The strategy will facilitate compliance with risk management standards and the development of key performance indicators at corporate and specialty levels.

- The Trust will implement a rolling programme of risk management activities across all directorates. These programmes will include key targets for activities such as risk assessment, incident reporting and incident management, risk registers; monitoring compliance with CNST/RPST standards; NPSA reporting, rolling programmes of risk training and education.

- The Trust will actively promote and encourage patient and user involvement across the organisation with risk issues where appropriate.

- Staff will be encouraged and supported to share learning and best practice in a way, which creates a culture of open supportive learning with accountability, even when mistakes have been made.

- The Trust will explore the development of a shared services approach to the development of enhanced risk management across the local health economy.

- The Trust will achieve Level III accreditation for CNST (Acute), CNST(Maternity) and RPST by 2004/2005.

- The Trust will achieve 90 % compliance with controls assurance (risk management) standard by 2004.

- Risks and incidents are used as a learning tool to develop a systematic process for open learning in a supportive but accountable culture

- Risk management information will be collected, collated and analysed to determine trends or areas of concern, ensuring that remedial action can be taken at the earliest possible stage.

- The Trust will have processes to ensure that risks are systematically identified, recorded, assessed and analysed on a continuous basis.

- A risk register is maintained on an ongoing basis for all individual directorates.

- The Trust Board will review the corporate risk register on quarterly basis.

- The Trust will ensure that all risks identified as requiring treatment, will have associated actions determined to control the risk. These will be appropriately recorded and implemented in accordance with priority.

- The Trust will be informed of and where necessary consulted on all significant risks and associated treatment plans on a continuous basis in line with the quarterly reporting system.

- The Trust will ensure that all relevant stakeholders, including staff, are kept informed and, where appropriate, consulted on the management of risks faced by the organisation.

- The Trust will develop and endorse the use of key indicators capable of showing improvements in management of risk and/or providing early warning of risks. These will be used at all levels of the organisation, including the Trust Board. The efficacy and usefulness of the key indicators will be reviewed on an annual basis.

- The Trust will produce an annual report for the Trust Board to demonstrate the risk management system's continuing suitability and effectiveness.

- The Trust will undertake a regular training needs analysis for the organisation, ensuring that comprehensive training programmes are delivered at all levels. This will include basic risk management training in the induction sessions for new starters.

- Training records will be kept, monitored and reviewed on a continuous basis ensuring that inadequate attendance is rectified.

- The risk management training programmes will be subjected to regular monitoring and an annual assessment of effectiveness and suitability, taking into account the developing national agendas.

- The Trust will ensure that all staff with specific responsibility for the co-ordination and advising on aspects of risk management are adequately trained and developed to fulfill their role.

- The Trust will continue to work towards the national agenda for convergence of clinical governance and controls assurance.

- The Trust Board will ensure that they receive assurance on risk management systems. This assurance will be provided by the Internal Audit function, through a process of periodic audits.

- The Trust will ensure that all risk management related reviews carried out by external agencies are effectively co-ordinated and any recommendations are implemented.

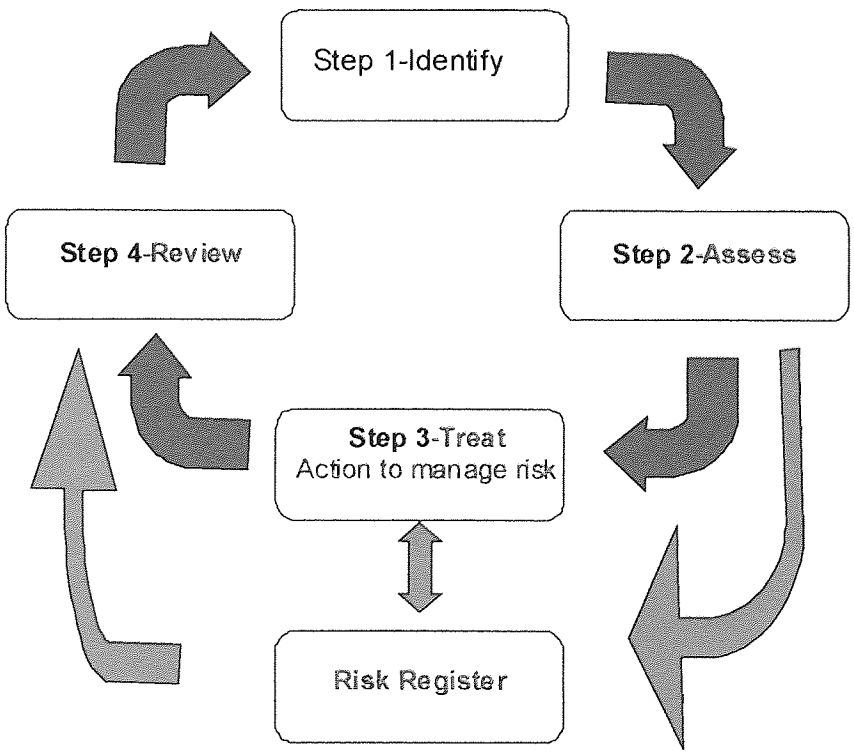
- Assurance reports will be presented to the Audit Committee in line with its Terms of Reference and will be copied to the Clinical Governance and Risk Management Committees.

Appendix B. Risk Management Processes for the Trust

Risk Management Cycle

The Trust's risk management procedure, including development of the risk register, is based upon the continuous utilisation of a 4 step cycle involving risk identification, risk prioritisation, risk control/treatment and risk review. This is based upon the Australian and New Zealand Risk Management Standard (AS/NZS 4360:1999-Risk Management) and is described in Figure 1 and sections 2.1-2.4. The Trust risk register represents the physical output from the risk management process. This process should be the principle mechanism that all staff, at all levels within the organisation use to manage risk.

Figure 1: Risk Management Cycle and relationship with the Trust risk register



The Trust considers risk management to be a continuous, dynamic process. It expects all Directorates, Departments and staff to adopt this type of approach and use it as the basis for operational implementation of risk management at both an organizational and local level. In addition to this, the Trust requires that all Directorates and Departments conduct a formal review of their risk management process and risk register status on a quarterly basis, at the end of each financial quarter.

8.2.1. Risk Identification

Risk identification is the responsibility of all staff throughout the organization. Risk may be identified through a variety of external and internal sources. Staff should take the widest possible approach to identify as many risks as possible. Identified risks should be collated and logged by the Departmental and Directorate managers to create a risk register.

8.2.2. Risk assessment (and prioritisation)

This enables the organisation to assess the level of risk based upon measurement of the likelihood and consequence of the occurrence. This prioritisation tool is based upon the Australian and New Zealand Risk Management Standard (AS/NZ 4360:1999). It is used to determine a risk category (i.e., severity score) for each risk identified. Definitions for the different risk categories are provided in the Trust's risk assessment matrix.

All risks which have a score of 9 or above (i.e., significant (orange category) and high (red category) risks), following risk assessment, should be reviewed by the Directorate Management Team (or appropriate line manager in Corporate areas), immediately. **High risk (Score 15 or above; red category risks) should be notified to the Risk Register Officer** who will review control/treatment plans and monitor implementation of these. He/She will advise the Director of Corporate Services who

will advise the Operational Board, Clinical Governance and Risk Management Committees of areas of concern in relation to these risks and treatment plans.

8.2.3. Risk Treatment (/Control)

For identified risks, the staff must agree a programme of actions to manage and control their identified risks. The following approaches should be use to control the risk:

- **Reduction:** taking action to reduce the risk
- **Avoidance:** undertaking the activity a different way to prevent the risk occurring
- **Transfer:** movement of the risk to another individual /organization
- **Acceptance:** all of the above options are not applicable and a contingency plan is prepared

For each risk identified, an action plan should be developed to set out the steps required to manage each risk.

Where additional resources are required to effectively manage a risk, this must be linked into the Department/Directorate/Trust's business planning process.

8.2.4. Risk Review

All parts of the organization are required to regularly review identified risks and the controls put in place to manage those risks on a regular basis. This should occur on a quarterly basis as a minimum. Once appropriate action has been taken to manage the risk, the risks should be re-scored. The Trust Board and Committees with particular responsibility for Risk Management will review these risks, through reports on risk register status.

Appendix C. Risk Assessment Matrix

TABLE 1 MEASUREMENT OF LIKELIHOOD

Level	Descriptor	Description
1	Rare	The incident may occur only in exceptional circumstances
2	Unlikely	The incident is not expected to happen but may occur in some circumstances
3	Possible	The incident may happen occasionally
4	Likely	The incident is likely to occur, but is not a persistent issue
5	Almost Certain	The incident will probably occur on many occasions and is a persistent issue

TABLE 2 MEASUREMENT OF CONSEQUENCE

Level	Descriptor	Description
0	Negligible	No injury or adverse outcome
1	Insignificant	No injury or adverse outcome
2	Minor	Short term injury/damage (e.g., resolves in a month); a number of people are involved
3	Moderate	Semi permanent injury (e.g., takes up to year to resolve)
4	Major	Permanent injury; major defects in plant, equipment, drugs or devises; the incident or individual involved may have a high media profile
5	Catastrophic	Death

TABLE 3 ASSESSMENT MATRIX THE RISK FACTOR = LIKELIHOOD. X CONSEQUENCE

	CONSEQUENCE				
LIKELIHOOD	Insignificant	Minor	Moderate	Major	Catastrophic
	1	2	3	4	5
1 Rare	1	2	3	4	5
2 Unlikely	2	4	6	8	10
3 Possible	3	6	9	12	15
4 Likely	4	8	12	16	20
5 Almost Certain	5	10	15	20	25

Appendix D. Case Study Protocol

Data Collection Plan

Data collection includes: the development of the case study protocol that describes the way(s) information will be gathered through interviews, observation, and existing documentation, the actual data gathering, and the recording of data.

Find-out Data Collection

The objective of data collection during the "find-out" phase aims to increase awareness of the organisation, its environment, and its idiosyncrasies, identify how risk management operates, its structures, processes, culture, tools, strategy, the role of knowledge management and the problems in risk management related to knowledge management.

Where

The data will be collected in the premises of the Trust under study. The exact location for the interviews and observations will be specified through respective administrative procedures.

When

The process of data collection has officially started from December 2003 with relevant documents provided to the researcher by the organisation, and observations of meetings with respect to the creation of Risk Registers. Meanwhile, research on the internet is carried out to locate data relevant to the environment of the system under investigation. The collection and investigation of documentation is an on-going process throughout the whole research project due to the nature of the research and the organisation. New guidelines and practices concerning risk management arrive constantly and should be seriously considered.

Furthermore, data will be collected through interviews. This type of data collection is expected to finish around October 2004.

The time effort for data collection in this phase includes person effort for: (a) the development of questionnaires (*est. 20 person days*), (b) the administration of interviews and organisation of material collected (*est. 20 person days*), (c) the interviews per se (*1.5-2 hours per interview; approx. 30 interviews*), (d) the case study protocol (*est. 7 person days*).

What

Type of data:

Data collection will be based on empirical data from interviews, observations, and existing documentation regarding the risk register, risk management standards, reports, policies and procedures, papers relevant to the hospital, and the N.H.S., existing initiatives regarding knowledge management in the N.H.S. etc. The hospital has provided the researcher with full access to relevant people, places, and documents.

Topics:

Data collection will involve questions targeting the following issues:

The organisation as a whole: to understand the environment and factors that might influence risk management or the flow of knowledge in risk management (i.e., N.H.S. regulations, Trust regulations, Trust/ hospital structures and culture).

Risk management: guided by the research questions to understand how risk management operates (strategy, structures, people, culture, processes, technology).

Knowledge management: guided by the research questions to understand the role of knowledge in risk management, the relation between information and knowledge, the way knowledge is created, manifested, transferred, used, in order to perceive the way knowledge can be integrated in the context of risk management (Wiig 1995).

The questions will be formulated based on the principles and requirements of the Soft Systems Methodology (S.S.M.) approach (Checkland 1981; Checkland and Scholes 1999). Based on this, data collection during the "find-out" phase aims at:

The creation of a picture of the current situation (the "**rich picture**"); the situation where problems are identified and analysed in order to be solved.

Cultural analysis of the situation: analysis of the intervention, analysis of the cultural context of risk management, and analysis of the political context of risk management.

The description of the "purposeful action" i.e., risk management at the hospital; the meaning people give to risk and its management based on their existing knowledge.

How

Documents

Existing documents related to risk management, its environment, strategy, culture, processes, policies and procedures, structures and initiatives regarding knowledge management are gathered from the hospital and the internet, mainly in electronic format. The documents are organised based on a user-defined (researcher-defined) filing system. More specifically, the documents are labelled based on the aforementioned topics, as they derive from the research questions. Further, an indexing system will support the identification of sub-categories of interest in each document. This system will locate categories or concepts of interest at each document.

Interviews

Data collection will be based on empirical data from unstructured and semi-structured interviews. The unstructured interviews will be addresses to informants from the upper level management; while for people involved in the daily tasks of risk management semi-structured interviews will be preferred.

The interviews will be based on an Interview Protocol (Creswell 1998; Creswell 1994), as shown in the following figure. The detailed Interview Protocols (i.e., containing the questions for each group/ sub-group of informants) is in InterviewProt[Group name].doc.

Interview Protocol

Purpose: Knowledge management in the context of risk management

Place/ Date/ Time:

Interviewer:

Interviewee:

Details about the interviewee:

(Description of the purpose of the study; the purpose of the interview; topics to be covered; what will follow the interview)

Questions:

(based on Questionnaires.doc)

Relevant documents:

(Documents/material presented by the interviewer, documents provided by the informant, references given by the informant)

(Thank you etc.)

Observations

The researcher will attend (a) meetings between Clinical Governance Support Units' facilitators and the hospital's Directorates that own local Risk Registers, (b) internal meetings of the Clinical Governance Unit. The researcher is an observant in these meetings.

During the observation the researcher takes mainly descriptive and reflective notes of what is discussed. The objective is not to record what is said rather to capture the context of knowledge creation and communication in such meetings. Those meetings also provide data about the compliance with the formal risk management policies and procedures of the Trust, but are primarily sources of cultural and political issues.

A protocol is also developed for the observations (Creswell 1998) as shown in the following figure.

Observation Protocol

Purpose: Knowledge management in the context of risk management

Place/ Date/ Time:

Participants/ Positions:

Purpose of meeting:

Descriptive notes:

1.

2.

Reflective notes:

1.

2.

Who

The organisational structure of risk management, as outlined in the following table, entails specific roles and responsibilities for individuals and committees. Based on the Risk Management Strategy 2003/2006 of the Trust (NHS Trust (Teaching) 2003):9) risk management at specialty level is delivered through directorate clinical and corporate governance teams, supported by a "dedicated Clinical Governance Support Unit".

Role	Responsibility
Chief Executive	Overall responsibility for the Trust's risk management programme.
	Signs the Statutory Statement of Internal Control.
Medical Director (Governance)	Responsible to the Trust Board and Chief Executive in relation to risk management and provides quarterly reports to the Trust Board in this regard.
	Oversees the provision of internal clinical advice, advises the Trust and Operational Boards on all aspects of clinical risk.
Director of Healthcare Governance	Responsible for the risk management strategy within the Trust, and for the direction of the Risk Management Department generally.
	Regularly reports to the Medical Director (Governance) and to the Trust Board in relation to risk management activities (in particular adverse incident report and risk register status).
	Advises the Trust and Operational Boards on all aspects of clinical risk.
	Liaison with other senior members of the Trust as required.
	Oversees the work of the Trust Risk Manager.
Executive Directors	Oversee a programme of risk management activities.
	Advise the Medical Director (Governance) and Director of Corporate Services on risk issues in areas of their responsibility.
Finance Director	Advises the Operational and Trust Boards on all aspects of financial risk.
Managers, Clinical Directors and all Managers	Responsible for overseeing risk management activities within the areas of their responsibility (locally) and ensuring that these areas comply with all aspects of the Trust's risk management policy and procedures.
Head of Clinical Governance	
Head of Corporate Governance	
Trust Risk Manager	Designated risk management advisor for the Trust, and has day-to-day responsibility for the management of all aspects of clinical and related non-clinical risk issues.
	Responsible for advising all staff throughout the organisation on issues relating to his/her areas of risk and adverse incident management.
	Responsible for ensuring that the Trust complies with national adverse incident reporting requirements and national risk management accreditation assessments.

Role	Responsibility
	Liaising with other key staff within the Trust (e.g., complaints manager; claims manager and Health and Safety Advisor etc) in relation to communicating with relevant external agencies (such as the N.H.S. Litigation Authority, H.M. Coroner; the Medical Devices Agency, Health and Safety Executive etc).
	Provide a regular report to the Director of Corporate Services, detailing clinical risk issues, incident reporting activity and lessons learnt from clinical risk management activities/adverse incidents).
	Responsible for providing reports to relevant risk management Committees as required.
Risk Register Officer	Responsible for the central management of the Trust risk register: central collation of the risk register; review of all local Directorate registers, including risk assessments and control/treatment plans; compilation of the Trust-wide risk register; advising staff on all aspects of assessment; and providing assistance to staff with the development of local risk registers; review of all risks and treatment plans identified through the Trust registers (paying particular attention to red category risks); identify risks which impact on multiple areas across the Trust and will advise the Director of Corporate Services of areas of concern.
	Responsible for progressing the development of the risk register and for enhancing the linkage of the risk register into the business planning systems.
	Responsible for producing regular reports to the Director of Corporate Services on the status of the Trust's risk register and appropriate Trust Committees as required.
Trust Health and Safety Advisor	Responsible for overseeing the management of all aspects of health and safety risks across the organisation; undertake investigations; undertake risk assessments and liaise with key managerial staff throughout the organisation.
	Advise to all staff about issues relating to health and safety risk.
	Ensure compliance with national reporting requirements for Health and Safety.
Risk Assistants	Undertake general risk management handling duties under the supervision of the Risk Manager: investigation of incidents, risk assessment, liaison with clinicians, accreditation assessments.
All Staff	Ensure they comply with local risk management strategies, policies and procedures.

Data will be collected through interviews with people who (a) belong to the upper level management of the hospital and are related to risk management and governance, (b) belong to the Clinical Governance Support Unit, or (c) work in areas where corporate and clinical risk resides, as these groups are directly linked with the development and management of the risk registers.

The selection of the directorates to be interviewed will be supported by the Head of Clinical Governance. In general, informants will be from directorates of the corporate and clinical (medical and surgical) area; whereas at least one directorate with no progress in the development of the local Risk Register, one with partial development of the local Risk Register, and one with successful completion of the Risk Register will be selected.

Ethical considerations

Protect sensitive information: confidentiality agreement already signed, questionnaires will be discussed with representative of the hospital (director of healthcare governance or head of clinical governance)

Respect informants' time, wishes, and restrictions concerning the information they can reveal.

Presentation of Case Study

The case study will be analysed and presented following S.S.M. and the requirements of the dissertation.

Appendix E. Cover Letter

HEALTHCARE GOVERNANCE DIRECTORATE

Memo

To: Selected Respondents
CC:
From: Director of Healthcare Governance (Acting)
Date: 5 July 2005
Re: Risk Register/ Knowledge Management Project

The Directorate of Healthcare Governance and the Research Group for Knowledge Management of Aston Business School in Birmingham are engaged in a research study that aims to identify how risk management at the Trust can be improved with the appropriate management of existing knowledge[1].

The study is carried out by Mrs. Athina Anthropopoulou, PhD student at Aston Business School and involves:

---

[1] *Knowledge* refers to the expertise, judgement, methodologies and know-how that is applied to interpret a particular situation and to decide how to manage it. *Knowledge management* includes the methods, techniques, and tools used to analyse and improve knowledge. In essence, *knowledge management* focuses on the detection of better ways to utilise the *knowledge* that exists within an organisation.

1. Investigation of how risk management is carried out, in terms of existing strategy, policies and procedures, processes and technology.
2. Evaluation of the way(s) knowledge is manipulated in the course of the risk management.
3. Development of a framework to improve risk management through knowledge management.

In order to gather the evidence that will support the aforementioned phases, interviews with people involved with the Risk Registers are essential. These interviews will cover the following topics:

1. How the Risk Registers operate:
    - What is the standard procedure for the development, maintenance and review of the Risk Registers
    - What kind of information is entered in the Risk Registers
    - Who is involved in the development, review and management of the Risk Registers
2. The communication between the Directorates and the Clinical Governance Support Unit

Each interview will start with an introduction to the project and any further clarification requested by the interviewee and will last approximately 50 minutes. Athina who carries out this study and will eventually do the interviews has signed a confidentiality agreement with the hospital.

We would appreciate your collaboration as the results of this study will benefit the whole Trust.

Director of Healthcare Governance

Appendix F. Outline of Interviews

Interview Protocol for Group A (Healthcare Governance Management)

Purpose: Knowledge management in the context of risk management

Interview Details:

Place/ Date/ Time:	
Interviewer:	
Interviewee:	
	e.g., (acting) Healthcare Governance Director
Details about the interviewee:	
Duration:	(est.) *90 mins* (act.)
Relevant documents	

Introduction

Questions

Closing

Questions:

Risk management environment – The role of knowledge

(Q1) In your opinion, is risk management important for the Trust? Why? Is the organisation as a whole aware of the importance of risk management and of the organisation's risk priorities?

(Q2) What is the environment of risk management outside the Trust (in terms of reporting, auditing, provision of information, like guidelines, etc.)

(Q3) Inside the Trust who (in terms of roles, not people) is involved in the risk management cycle? What kind of knowledge is needed to perform each role?

a. HCG: Medical Director, Director, Head of Clinical Gov, Head of Corporate Gov, Rmger, C.G.S.U. (Q5)

b. Committees (Q5), (Q6)

c. Directorates

(Q4) Based on what criteria were the facilitators selected for the job?

(Q5) What is the role of the Committees in risk management? Which Committee and when does it interfere?

(Q6) When do the OpsB and the TB in the process? Are there specific types of risks that these Boards should be aware of?

(Q7) Do you believe that the Trust has the knowledge needed for risk management? Is it used efficiently? In terms of knowledge and expertise, who do you think is the 'weakest link'?

a. Do you believe the knowledge of the facilitators is enough for the support of the Directorates? What might be their weaknesses and in which part of the whole process?

b. Do you think the Leads in the Directorates are the real experts with the management of risk? How where they selected?

(Q8) Are there any incidents where risk management fails because of lack or misuse of knowledge/ expertise?

Risk management processes

(Q9) How are risk management carried out , what kind of expertise is needed:

a. Risk identification

b. Risk assessment

c. Risk treatment

d. Risk review

(Q10) Are there any business changes regarding risk management planned? How much will the Foundation status affect risk management as it currently operates? Might it introduce new strategy, policies, and structures?

(Q11) Is risk management evaluated? How (criteria, process, success)? How are the priorities for improvement in risk management decided and how is progress monitored?

(Q12) Which body evaluates the risk management strategy? Which body can introduce changes?

(Q13) Do the Directorates participate in the evaluation process?

Risk registers

(Q14) Do you believe that the risk registers cover all the decision-making needs? Is the risk register an appropriate reflection of the risks facing the organisation? Were there any remarks/ complaints? What supports you in

the decision making process? (i.e., input about scoring, action plan, date, funding, person responsible)?

(Q15) Does information in the risk registers reflect the real picture of risks? Do incidents, claims, complaints feed the risk registers?

(Q16) Do the Directorates receive feedback on their risk registers?

(Q17) Are lessons learned from the incidents, claims etc. disseminated in risk management?

(Q18) Is risk management carried out in a way that really benefits the organisation or is it treated as a box ticking exercise? Which are the strongest points in the risk register cycle? The weakest? (e.g., identify risk, assess risk, treat risk, retrieve information, share information, locate expert/ expertise, store information)

Sharing & collaboration/ Power

(Q19) What is the role of teamwork in the risk management processes & decision-making? Is there any need for cross-functional communication, i.e., collaboration among teams from different Directorates? How efficient is this collaboration?

(Q20) Who/ which organizational role is the more knowledgeable of risk and risk management? Do you think they possess a kind of authority in the risk management cycle?

(Q21) In the organizational structure, which roles could be a barrier for knowledge transfer/ flow/ integration? In your opinion, what prevents people from transferring their knowledge regarding risks and risk management?

(Q22) Which roles could facilitate knowledge transfer/ flow/ integration?

(Q23) What initiatives are undertaken (if any) to improve communication and teamwork and how do you evaluate them?

(Q24) Within HCG, are there any roles that possess more knowledge? How willing are they to share what they know?

(Q25) Are people encouraged to share their experiences, or knowledge?

(Q26) How are new guidelines, strategies, policies regarding risk management communicated?

Hierarchical structure

(Q27) Are there job descriptions for each level of the risk management hierarchy? Is there any review in the job descriptions based on the Agenda for Change?

(Q28) What improvement could be introduced in the role/ responsibility description?

Roles & responsibilities: the interviewee in the process

(Q29) What are your responsibilities regarding risk management? Why were you selected for this role/ job?

(Q30) What do you have to know to perform the tasks required in view of the risk management?

(Q31) Do you possess or do you have access to the knowledge required? Knowledge accessibility problems

(Q32) Whom do you collaborate with?

Learning

(Q33) Do you believe that in the Trust there is a problem of knowledge loss when somebody leaves?

(Q34) Are there specific training programs to support risk management? Is risk management in the Continuing Development Programs? How do you ensure that the education and training of staff is planned, evaluated and supports risk management needs?

(Q35) Are there any lessons learned sessions? Is there any lessons learned documentation? If so, are they accessible to everyone involved in the risk register process?

(Q36) Are people encouraged to learn by searching, participating in discussion fora?

(Q37) Are there any formal meetings where you can report any problems or discuss about other people's problems?

(Q38) Who helps you improve?

(Q39) Whom do you help to improve?

(Q40) Are you encouraged to improve your knowledge of how to perform your job?

(Q41) Are you encouraged to distribute/ share what you know about doing your job better?

IT

(Q42) Based on what criteria was DATIX selected? Are there any training sessions planned?

(Q43) Which technologies do you plan to use in the future?

(Q44) Are there currently any knowledge management initiatives in the N.H.S.?

Lead to next group of informants - Directorates

(Q45) Which risk registers would you recommend for me to interview? Immature, medium, mature? Leads who can/ would be willing to provide information.

Interview Protocol for Group B (Directorates)

Purpose: Knowledge management in the context of risk management

Interview Details:

Place/ Date/ Time:

Interviewer:

Interviewee:

Details about the interviewee:

Duration: (est.) *50mins* (act.)

Relevant documents:

Introduction

Questions

Closing: room *, ext. ** (location of researcher)

Introduction:

This study focuses on the identification of how the appropriate management of knowledge that exists within or outside the Trust can support risk management at the hospital. More specifically, the research will investigate how risk management is carried out, in terms of existing strategy and policies and procedures, structures, people, information flow and management, processes, and technology and will try to evaluate the way(s) knowledge is manipulated in the course of the risk management processes. By the term 'knowledge' we mean the expertise, ideas, truths, beliefs, perspectives, methodologies, know-how needed for each phase of the risk management cycle. While a serious amount of information about risk is gathered during the risk management lifecycle it is knowledge that is used to interpret the valuable information about each situation, and decide how to manage it. Knowledge is used to determine what each bit of information means.

My research goes through: data collection (interviews, observation, and documentation), data analysis, theory development, and presentation of findings.

This interview aims to gather as many information as possible concerning the risk management cycle through your experience so far: your involvement in the management of the risk registers, your thoughts on any problems caused by lack of experience or miscommunication of existing experience, your recommendations, your perceptions of how knowledge flows within the groups involved in risk management.

The interview will be **digitally recorded** (if you agree), and I'll concurrently take some notes. I have signed a **confidentiality agreement** with the Trust therefore any publication of data will be limited. Everything that will be mentioned will be used only in the context of the research. I'm the only one who will keep the interview records; nobody will have access to these data. The goal is to gather as many ideas as possible so that the proposed framework reflects your needs and is applicable.

Questions:

(Q1) Is risk management important for the Trust? Why? Do you believe that risk management is important for this Directorate? What are the perceptions on the importance of risk management Trust-wide?

(Q2) How long have you been working with the risk registers in this Trust? Why were you selected for this role/ job?

(Q3) What are your responsibilities regarding risk management? Whom do you collaborate with? (*structure*)

(Q4) How do you mostly gather the information needed for the risk register? From people? Documentation (e.g., incidents reporting)? Personal experience? What are the sources of risk-related information? What support in terms of information management would be helpful?

(Q5) Are there job descriptions for every role in the risk management cycle? How detailed and how indicative of what people are really doing are the job descriptions?

(Q6) What do you have to know to perform the tasks required in view of the risk management?

(Q7) Do you feel that you (personally) have enough knowledge to support the needs of the risk registers? What kind of difficulties do you face?

(Q8) How is risk identified, assessed, treated? How are RRs reviewed? How does a risk move from the local to the Directorate risk register?

(Q9) Do you have formal internal meetings to discuss about the risk registers? How often?

(Q10) How updated are the risk registers? What happens in between the review periods? How is a new risk incorporated in the risk register? How

accurate is secondary data based on which you develop the risk register? (e.g., Are patient adverse incidents and near misses reported?)

(Q11) What are the internal teams/ roles that have to collaborate for the development of the risk register? for the review of the risk register?

(Q12) Do you believe that those teams collaborate efficiently? Are they willing to share their knowledge? (*sharing*)

(Q13) Do you believe that people in the Directorate have the knowledge required to manage the Directorate's own risks? What are the difficulties the whole risk management process?

(Q14) Was there any incident where risk management has failed because of critical or key knowledge absence/ misuse?

(Q15) Do you use the information in the risk registers for the business planning of the Directorate and vice versa, does the Directorate business plan affect the risk register?

Sharing & collaboration/ Power

(Q16) Do you feel that you get enough support by the Clinical Governance Support Unit? Do you believe that the have enough knowledge to support you? What are their weakest points?

(Q17) Is there any direct communication with the Committees?

(Q18) Do you communicate with other Directorates regarding issues of your risk registers? What about Trust wide risks?

(Q19) Are there people or levels in the hierarchy of the Trust that possess significant expertise on risk and its management? How do they affect the development and review of the risk register?

(Q20) In your opinion, what might prevent people from transferring their knowledge regarding risks and risk management?

(Q21) How do you get feedback on the significant risks?

(Q22) How are new guidelines, strategies, policies regarding risk management communicated to you?

Roles & responsibilities – The interviewee into the process

Hierarchical structure

(Q23) Who to you report to? Who reports to you?

Norms & values

(Q24) Do you consider your role in the risk management cycle really valuable? or is it just an administrative role?

(Q25) Which (other) roles would you consider crucial for risk management? (In terms of roles not persons) What improvement could be introduced in the role/ responsibility description?

(Q26) In case of your absence/ leave who could carry on with the risk register? What kind of training would s/he need?

Learning

(Q27) Are there specific training programs to support risk management? Is risk management in the Continuing Development Programs? How do you ensure that the education and training of staff is planned, evaluated and supports risk management needs?

(Q28) Are there any lessons learned sessions in the Directorate? Is there any lessons learned documentation? If so, are they accessible to everyone involved in the risk register process?

(Q29) Are you encouraged to distribute/ share what you know about risks in the Directorate/ in the Trust? How do you share?

Technology

(Q30) In RM do you use any IT application? For what kind of task?

Process - General

(Q31) What are the reporting requirements from risk management, if any?

Is the information in the risk register clearly documented, so that anyone involved can understand it? What would you suggest for the contents of the risk register?

(Q32) Do you believe that the risk register can provide all the information needed to make a decision about a risk?

(Q33) Is risk management carried out in a way that really benefits the organisation or is it treated as a box ticking exercise?

(Q34) Which are the strongest points in the risk register cycle? The weakest? (e.g., identify risk, assess risk, treat risk, retrieve information, share information, locate expert/ expertise, store information)

(Q35) Is risk management evaluated at the level of process, or strategy? Do you as Directorate suggest changes?

(Q36) What would you suggest for the risk management process?

Interview Protocol for Group C (C.G.S.U.)

Purpose: Knowledge management in the context of risk management

Interview Details:

Place/ Date/ Time:

Interviewer:

Interviewee:

Details about the interviewee:

Duration: (est.) *60mins* (act.)

Relevant documents:

Introduction

Questions

Closing: *, ext. ** (location of researcher)

Introduction:

This study focuses on the identification of how the appropriate management of knowledge that exists within or outside the Trust can support risk management at the hospital. More specifically, the research will investigate how risk management is carried out, in terms of existing strategy and policies and procedures, structures, people, information flow and management, processes, and technology and will try to evaluate the way(s) knowledge is manipulated in the course of the risk management processes. By the term 'knowledge' we mean the expertise, ideas, truths, beliefs, perspectives, methodologies, know-how needed for each phase of the risk management cycle. While a serious amount of information about risk is gathered during the risk management lifecycle it is knowledge that is used to interpret the valuable information about each situation, and decide how to manage it. Knowledge is used to determine what each bit of information means.

My research goes through: data collection (interviews, observation, and documentation), data analysis, theory development, and presentation of findings.

This interview aims to gather as many information as possible concerning the risk management cycle through your experience so far: your involvement in the management of the risk registers, your thoughts on any problems caused by lack of experience or miscommunication of existing experience, your recommendations, your perceptions of how knowledge flows within the groups involved in risk management.

The interview will be **digitally recorded** (if it's ok with you), and I'll concurrently take some notes. I have signed a **confidentiality agreement** with the hospital therefore any publication of data will be limited. Everything that will be mentioned will be used only in the context of the research. I'm the only one who will keep the interview records; nobody else will have access to these data. The goal is to gather as many ideas as possible so that the proposed framework reflects your needs and is applicable.

Questions:

(Q1) How long have you been working with the risk registers in this Trust? Do you have any prior experience elsewhere? Why were you selected for this role/ job? Do you have any relevant expertise?

(Q2) Is risk management important for the Trust? Why? (Is the organisation as a whole aware of the importance of risk management and of the organisation's risk priorities?)

(Q3) If someone were to get involved as a facilitator in the risk management cycle what kind of skills did s/he have to possess?

(Q4) Do you as the Clinical Governance support team have enough knowledge to support the Directorates? What kind of difficulties do you face?

(Q5) Do the Directorates have the knowledge required to manage their risks? Do they have knowledge about the mechanisms of risk management (i.e., risk registers)? What difficulties do you think they face in the whole risk management process?

(Q6) Do you feel that after the meetings with the Directorates you have offered support to them? Do you feel that you have gained something/ learned something?

(Q7) Was there any incident where risk management has failed because of critical or key knowledge absence/ misuse?

(Q8) Describe the risk management cycle & outline the decision making process. What is the role of the Committees? *(try to outline the processes and the stakeholders, use a blank piece of paper to draw on)*

(Q9) Are there job descriptions for every role in the risk management cycle? How detailed and how indicative of what people are really doing are the job descriptions?

Sharing & collaboration/ Power

(Q10) What are the teams that have to collaborate during each phase? (based on the draw)

(Q11) Do you have formal meetings with the Directorates to discuss about the risk registers?

(Q12) Do the Committees and the Directorates communicate?

(Q13) Do you believe that those teams collaborate efficiently? Are they willing to share their knowledge?

(Q14) Are there people or levels in the hierarchy of the Trust that possess significant expertise on risk and its management? Do you think they possess a kind of authority in the risk management cycle?

(Q15) In the organizational structure, which roles could be a barrier for knowledge transfer/ flow/ integration? In your opinion, what prevents people from transferring their knowledge regarding risks and risk management?

(Q16) Which roles could facilitate knowledge transfer/ flow/ integration?

(Q17) What initiatives are undertaken (if any) to improve communication and teamwork and how are they evaluated?

Roles & responsibilities – The interviewee into the process

Hierarchical structure

(Q18) What are your responsibilities regarding risk management? Based on the diagram what is your involvement in each stage? Whom do you collaborate with?

(Q19) Who to you report to? Who reports to you?

(Q20) How do you mostly gather the information needed for the risk register? From people? Documentation (e.g., incidents reporting)? Personal experience? What are the sources of risk-related information? What support in terms of information management would be helpful?

(Q21) What do you have to know to perform the tasks required in view of the risk management? (based on draw)

(Q22) Do you possess or do you have access to the knowledge required? Knowledge accessibility problems

Norms & values

(Q23) Do you consider your role in the risk management cycle valuable?

(Q24) Which (other) roles would you consider crucial for risk management? (In terms of roles not persons) What improvement could be introduced in the role/ responsibility description?

Learning

(Q25) In case of your absence/ leave who could carry on with the risk register? What kind of training would s/he need?

(Q26) How are new guidelines, strategies, policies regarding risk management communicated to you? to the Directorates?

(Q27) How do you learn what you need to know regarding risk management?

(Q28) Are there specific training programs to support risk management? Is risk management in the Continuing Development Programs? How do you ensure that the education and training of staff is planned, evaluated and supports risk management needs?

(Q29) Are there any lessons learned sessions? Is there any lessons learned documentation? If so, are they accessible to everyone involved in the risk register process?

(Q30) Do you have regular internal meetings? What do you discuss about?

(Q31) Are you encouraged to distribute/ share what you know about doing your job better? Do you feel comfortable to share your views, problems, and ideas with your colleagues?

(Q32) Who helps you improve? How?

(Q33) Whom do you help to improve? How?

Technology

(Q34) In RM do you use any IT application? For what kind of task? Who could demonstrate it to me?

(Q35) Which of the following technologies do you regularly use (to support knowledge management initiatives)?

Intranet	**Internet**	**Knowledge and databases**	**Data mining and knowledge discovery techniques**
E-mail	Search on www	Knowledge-based systems	Extracting knowledge from process data to improve operations
Videoconferencing	Knowledge exchange with customers	Performance support systems/ decision support systems	Simulation (computer modelling, what-if scenarios)
Yellow pages of expertise		Best practice/lessons learned databases	
Discussion forum		Management information systems	
Shared documents			
Training and education			
Gathering and publication of lessons learned/ best practices			

(Q36) Are there any technologies that you have at your disposal but do not use?

Process - General

(Q37) What are the regulations that affect risk management (strategy, procedures, etc.)?

(Q38) What are the reporting requirements from risk management inside the Trust/ outside of it? (e.g., serious outward incidents, regular reports to Health Authorities)

(Q39) Is the information in the risk register clearly documented, so that anyone involved can understand it? What would you suggest for the contents of the risk register?

(Q40) How accurate is secondary data based on which you develop the risk register? (e.g., Are patient adverse incidents and near misses reported?) How updated are the risk registers with what is really going on in the Trust?

(Q41) Do you believe that the risk register can provide all the information needed to make a decision about a risk? (i.e., for the Committees)

(Q42) Is risk management carried out in a way that really benefits the organisation or is it treated as a box ticking exercise? Which are the strongest points in the risk register cycle? The weakest? (e.g., identify risk, assess risk, treat risk, retrieve information, share information, locate expert/ expertise, store information)

(Q43) Is risk management evaluated at the level of process, or strategy? How (criteria, process, success)? By whom?

(Q44) Do the Directorates suggest changes? Have you reported any change proposed by the Directorate lead? Has there been any change as a result of feedback?

(Q45) What would you suggest for the risk management process?

(Q46) What do you see as the advantages of a knowledge management initiative for the management of risk?

(Q47) Are there any knowledge management initiatives in the N.H.S.? in the Trust? that you are aware of?

Lead to next group of informants - Directorates

(Q48) Which risk registers would you recommend for me to interview? Immature, medium, mature? Leads who can/ would be willing to provide information.

Appendix G. Data Analysis: "Nodes" in N6

QSR N6 Full version, revision 6.0.

Licensee: Unregistered.

PROJECT: HoE

REPORT ON NODES FROM Tree Nodes '~/'

Depth: ALL

Restriction on coding data: NONE

(1) /KM

(1 1) /KM/information

(1 5) /KM/KM initiatives

(1 5 1) /KM/KM initiatives/current KM init

(1 5 2) /KM/KM initiatives/future KM init

(1 5 3) /KM/KM initiatives/perceptions on KM init

(1 6) /KM/knowledge

(1 6 1) /KM/knowledge/existing knowledge

(1 6 2) /KM/knowledge/required knowledge

(1 11) /KM/information flows

(2) /RM environment

(2 1) /RM environment/external RM environment

(2 2) /RM environment/Internal RM environment

(2 2 1) /RM environment/Internal RM environment/roles

(2 2 3) /RM environment/Internal RM environment/relationships

(2 2 3 1) /RM environment/Internal RM environment/relationships/Hierarchy

(2 2 3 2) /RM environment/Internal RM environment/relationships/Support

(3) /RM culture

(3 2) /RM culture/norms

(3 3) /RM culture/values

(3 4) /RM culture/sharing

(3 4 1) /RM culture/sharing/in CGSU

(3 4 2) /RM culture/sharing/CGSU and Dirs

(3 4 3) /RM culture/sharing/Trustwide

(3 4 4) /RM culture/sharing/within Dir

(3 5) /RM culture/learning

(3 6) /RM culture/power

(3 7) /RM culture/change

(4) /RM processes

(4 1) /RM processes/RM planning

(4 2 /RM processes/risk identification

(4 3) /RM processes/risk assessment

(4 4) /RM processes/risk treatment

(4 5) /RM processes/RM monitoring & review

(4 6) /RM processes/RM communication & consult

(4 6 1) /RM processes/RM communication & consult/Reporting

(4 6 3) /RM processes/RM communication & consult/Formal NW

(4 7) /RM processes/perceptions on RM process

(4 7 1) /RM processes/perceptions on RM process/strengths & positive

(4 7 2) /RM processes/perceptions on RM process/weaknesses & negative & suggestions

(4 7 3) /RM processes/perceptions on RM process/importance

(4 8) /RM processes/Risk review

(4 10) /RM processes/RR Mgt

(4 10 1) /RM processes/RR Mgt/Trust RR

(4 10 2) /RM processes/RR Mgt/DATIX

(4 10 9) /RM processes/RR Mgt/Local & Dir RR

Appendix H. Evidence for the Cultural Stream of Analysis

Subject (node in N6)	Source
Risk Identification	
I cannot walk around every single building and every single room in the hospital. What we need to do is to make people tell us what they've got and then build up the risk register. That's why we've got local management.	dir
The identification of risks is an ongoing process. Any doctor or sister if s/he picks any lessons learned s/he will present special cases and look at it what we have learned from our experiences. We look at IR1 very carefully. If you have regular incidents, for example we used to have a lot of problems with so we changed the system. We look at the IR1 forms.	dir
The incidents reported are all investigated according to the Trust procedures they are acquainted, they are noted and the level of investigation to each incident is related to how serious this is. We then collate that data. Incidents where a manager identifies an issue all go straight on to the risk register. Trends that are noted may also go to the risk register.	dir
Try to identify whether there was a trend whether there was a solution, how important the risk is. I [risk register lead] determine whether there is a reason to go to the risk register.	dir
One of the issues we found is that you have to decide the proper level of risk, because that risk is absolutely everything and when we started we had roughly 30 items on our risk register but if you look at everything on a risk it could be over a hundred. You know if you take it to the very lowest level and you have to decide the cut-off level which is to an extend arbitrary and it's the level that you set because you think that's what we can actually do.	dir
We try to incorporate risk (effect) and cause in the description.	dir
We have some problems as there is no clear indication of why something happened.	dir
Well, you say what the risk is what the likely indications are. The description of the risk is usually done by the manager, not the person who identifies it, because when a person identifies it will feed it back to the manager and we'll have a discussion.	dir
You cannot include everything and if somebody came, let's say from an engineering background came it would give them a flavour of some of the higher risks. It wouldn't mean that they could come through the A&E department and know what the best practice is or not.	dir
We try to clarify what happens.	dir
Because I personally know how to report risks I tend to describe the situation or management problem and end to describe what risk this might be for the Trust...	dir
To have all risks in the risk register would be enormous and updating by yourself is too much.	dir
I think people are sometimes reluctant to report violence or aggression	dir

especially from other staff.	
We generally put something in the risk register when it is recurring problem because there are too many one-off to have all in the risk register. The most common ones are either communication issues or educational issues, when somebody doesn't have an adequate level of knowledge to see what the problem was.	dir
At one directorate he looks at the incidents of the last quarter and uses that to populate the risk register which is brilliant. The others no, only a few do. It is not done in a clear logical way (link red forms, Incident Reports (IR1) and the risk register), it is erratic.	C.G.S.U.
Some directorates encourage everybody to report risks.	C.G.S.U.
The risks on the risk registers are what people tell you.	C.G.S.U.
In some cases they refuse to include the financial risk…	C.G.S.U.
There are still people who do not want to report risks because they might be blamed for them, but I think that has lessened than 2 years ago.	C.G.S.U.
I always encourage them to put serious incidents in the risk register because that is actually about managing a risk, it means it gets highlighted at least every quarter and if you are acting every quarter what are you doing about this. If you don't put it in the risk register you probably don't have to do anything about it.	C.G.S.U.
Sometimes they have no evidence that they had a problem. I can do it for them now, but when they are going to own the risk register…	C.G.S.U.
However, they might be willing to fill in the risk register, but might not do it.	C.G.S.U.
Some directorates are good in thinking how to manage the risks. It depends on the skills and the experience of the risk register lead.	C.G.S.U.
It depends on who's driving the particular area. Although the validation of the significant risks now works vey well.	C.G.S.U.
There is no standard risk description. It depends on personal judgment.	C.G.S.U.
Each facilitator has own way of writing the risk register. The way I like it is so that a stranger could understand it.	C.G.S.U.
No, I don't think it is clear enough. People word things differently and it is part of our job to bring the risk description to ensure it describes the risk and why it happens (cause), rather than how huge the theatres are, why we are not achieving the one or the other.	C.G.S.U.
The directorates use too wordy descriptions.	C.G.S.U.
No standard template in the N.H.S. Variable, difference based on directorates, whether the right questions have been asked, doesn't necessarily describe what the risk is.	C.G.S.U.
This depends very much on how much we either pushed the lead to describe or how descriptive the lead is. There are some directorates where I have started to push now. But I think that there are only few of my directorate risk registers that are poorly described.	C.G.S.U.
Risk Assessment	
Scoring is subjective.	dir
How could they know how significant a risk is?	dir
C.G.S.U. doesn't always understand why a high score, we have to explain.	dir

I think that's quite difficult [to understand the context] because some of our risks are quite technical.	dir
Unfortunately it's very difficult to quantify exactly how much likely, more than likely, you've got those definitions if you want to score high. I think to the risk registers what I don't agree is sometimes we got our risks underscored and somebody is changing the scores without communicating to us. I think the scoring is a problem with the risk register.	dir
I think C.G.S.U. will try and argue down the risk. Not that they will try to argue down the risk that will make you prove that the risk isn't real, but if the way you scored is correct. And then it will go to the Trust risk register.	dir
We need to look not only if the controls exist but in what degree.	dir
To be honest at the beginning I thought I would make something to change the world, now I am disappointed. Even scoring is not robust.	dir
If in doubt for a high score we ask them questions.	C.G.S.U.
In case of high likelihood we ask how many incidents did you have.	C.G.S.U.
We want to degrade the scores.	C.G.S.U.
The directorates don't always agree with the definitions in the matrix [risk assessment matrix].	C.G.S.U.
There is a difference between how we and the clinicians score a risk.	C.G.S.U.
The directorates don't always have a high-level view of the risks that's why they score high.	C.G.S.U.
A risk with a significant business impact might be ignored if it doesn't have clinical impact.	C.G.S.U.
There are different sorts of risks that are related to the same issue. If you score them separately how do you aggregate the score of the issue? No guidance for an accurate score, the clinical impact. The styles vary. We quality assure ourselves.	C.G.S.U.
[on corporate and clinical risk assessment]: we use the same matrix based on the AS/NZ. It doesn't necessarily reflect the reality of corporate risk.	C.G.S.U.
If you ask them about the process related to a certain risk they prefer to lower the score than explain in details, they say 'it's too complex'.	C.G.S.U.
Risk Treatment	
There's a lot of reinventing the wheel that goes on and unnecessarily. Probably the facilitators help to reduce that.	dir
Significant risks go as business cases to the Trust Board.	dir
There is always an action plan. The important thing is to communicate it through the manager. It's the way of the risk register we communicate with the management they got to decide, we communicate to the management and say we need some money.	dir
Some of them well we have some where we have to put some controls but you cannot change it; something... you can do all that but if it is a risk it is a risk but you have to make sure that you have all the checks and tests in place because you are going to be answerable or accountable when it happens.	dir
We deal with low risks with local changes in systems, processes and local purchases. We just have to accept some risks.	dir
We put all this effort and energy into identifying the risk and actions but this doesn't necessarily lead to them being resolved, managed, reduced.	dir

When you identify your risk you have to meet with somebody who's doing well, it's the information sharing that is the vehicle.	C.G.S.U.
We transfer solutions from directorates that we think are applicable to other directorates.	C.G.S.U.
Some directorates are good in thinking how to manage the risks. It depends on the skills and the experience of the risk register lead.	C.G.S.U.
The action plans are approved by, well it should be discussed by the lead to the clinical director/ directorate general manager. But there could be a leak at that area.	C.G.S.U.
When they identify a significant risk they have to put together a business case and they do not do a normal business case. It depends on the person who describes the business case.	C.G.S.U.
I think if they want to do something with the risk register the only way to do that is to write a business case. We try to encourage business cases, but people are quite negative towards that, because a lot of business cases are just getting thrown out.	C.G.S.U.
...they have difficulty to assess the impact and the financial resources needed to solve it. Often they don't know how to do a business case.	C.G.S.U.
There is no guarantee that anything will be done.	C.G.S.U.
Risk Review	
Now all the clinical area managers know that and update it quarterly. We use it quite well cause we think it is a tool to be used.	dir
Generally we don't change anything in between.	dir
I wouldn't do it every month I can do it every quarter and I have a meeting with RM and we update it together.	dir
I find it a quite cumbersome document to have to update and if we spend the risk part of the directorate meeting updating the risk register we will never do anything else.	dir
I find it a quite cumbersome document to have to update and if we spend the risk part of the directorate meeting updating the risk register we will never do anything else. And it would be time spent doing an administrative task really for the sake of doing it rather than because we make a contribution to patient care.	dir
We update it on a quarterly basis. It is not updated in between, only every three months. Obviously actions are carrying on all the time to try to reduce risks. Anytime a particular problem arrives it can be added on. But that won't really be reported anywhere before the quarterly review.	dir
We have a quarterly review meeting. Generally we don't change anything in between. Generally we intend to look at it every quarter. Because we only get a quarterly report from the clinical governance department [directorate of healthcare governance].	dir
We are not getting formal feedback.	dir
There is complete uncertainty of what their roles are and what the outcome will be from the review.	C.G.S.U.
The directorates haven't seen much progress.	C.G.S.U.
The risk registers are fixed for several months (until the review).	C.G.S.U.
...but we might not have the time to go check upon them, if they have	

introduced the changes. From quarter to quarter, you have no idea of what is happening in that quarter.	
If the directorates had someone to tell them "how can we help" it would be more likely to do something than when we go and say "you need to do that"; it would be like they feel that they get the support all the time and not just when we go to do the review.	C.G.S.U.
That's what they are supposed to be in theory [updated all the time] but I think in practice that's quite difficult to implement because in the directorates the lead has to say "send me risks" if something is to be in the risk register, so they have to put a little description on and then we'll do the quarterly update. They are getting better at doing that but I think a lot just wait until the quarterly update to think about the risks that are happening. It should be a working document rather than just a spreadsheet but they have to pay a full timer to do it.	C.G.S.U.
Between risk reviews people are supposed to put in the risk register any risk, some people are very proactive, but more people have a lot to do and just wait for the review. They can add things anytime, some do, some don't.	C.G.S.U.
What we tend to do for the areas that don't review them (risk registers) automatically ... we send out an e-mail or call to inform.	C.G.S.U.
So, I expect them to go through the risk register before the meeting and then inform the group of what changed during the meeting.	C.G.S.U.
Other areas need us to remind them when they should do their risk register review. In some directorates we have to go there and help them with the review. I try not to do this with my directorates, there are no resources.	C.G.S.U.
The directorates don't hear any outcome. 'We log this risk; we want to eliminate it, so give feedback at a local level. So that people can see it's no paper chase'.	C.G.S.U.
I'm not sure about the information coming back to them. It tends to be that information as funding comes back to them, cause they get feedback on whether their bid got accepted or not.	C.G.S.U.
I have questions on feedback, what happens next, and know that I'll have this question when I go to the radiology, because it is a common question. I explain to them that they have to put them in the risk register, with the report they feed the directorate report and that's when action could be taken. It is about sharing information across the Trust. They want to know where they are going.	C.G.S.U.
Implementation Plan for Risk Management Strategy	
The risk management strategy was developed under pressure. It includes specific objectives, but not explicitly of risk management strategy, it doesn't have a specific implementation plan to support to a degree the strategy.	Management of the directorate of healthcare governance
Knowledge is not the problem!	Management of dir of healthcare governance
You are putting so much pressure on us, with all our clinical work how are we expected to do this additional work.	dir
I think RM is well organised within the Trust. I believe that thinks have	dir

improved continuously.	
A lot of RM is probably tied down on paperwork and systems. I think it is more bureaucratic at the moment. Rather than being proactive I think it is very much reactive. We have also to do proactive work it is more difficult to do that.	dir
I can see why from a corporate Trust point of view having risk registers is important. I think that for many of these processes there isn't the administrative support in place to actually run it in a way that it would be effective.	dir
Extremely important primarily once you try to eliminate risk for patients and carers and improve care and then there is the other side of risk where we have a lot of claims and they cost the Trust a lot of money, money that could be diverted back to patient care.	dir
Absolutely, bottom line. Key regarding following the guidelines, processes for directorates.	dir
It's even more and more important over the years and it's very well managed here.	dir
Risk is paramount to our business...	dir
...we have responsibility not only to the patient but to employees and we have responsibility as a business to make sure that we are corporately safe.	dir
There is a different level of knowledge out there and we are trying to improve that through various methods. And there is a long way to go. So for clinical risk we've been training staff and I believe now that our risk management clinical staff they are trained and they are very aware of incidents that need reporting and they do report and they report quite comprehensively that's good. And we feed back to the staff in the clinical risk review meetings, so I analyse the data and then the serious incidents after investigation. There is a ground floor for risk management really, we try to get people interested in the fact that we've got a risk management strategy and we look forward to connect more the higher level.	dir
I think there is a key individual in each area that is aware of. But if you like the sort of the general public I think the importance of risk registers is not as it should be in the Trust. ...People are not aware of the importance to share. Trust-wide there is lack of encouragement for participation.	dir
It's important that the Trust has a very good reputation. ... I feel we are very much biased towards clinical risk.	dir
I know everybody wants to believe there isn't blame culture but I think there is. I think this organization is obsessed with statistics and measuring in terms of audit. I think that is generating a culture that wouldn't help; putting pressure on people. People cannot do their job.	dir
It would be good if you had a way of congratulating people when a risk is being managed because we tend to not in this Trust necessarily but in N.H.S. they tend to "kick ass" really rather than to say you've done very well. It's difficult to do what I want to do; to present the picture at large.	dir
There is a lot of reinventing the wheel.	dir
The reactive system works.	C.G.S.U.
Risk management has now become a rather complex process.	C.G.S.U.
There's no way that we can actually say "you have to implement it". So I think	C.G.S.U.

we don't have the tools to do it at the moment. Once the strategy comes in we'll have a lot more tools and more power to do it right.	
They are a little bit sceptical about the paperwork (is it another paper chase? Another box ticking exercise?), a list of problems (listen to this part again)	C.G.S.U.
...it depends on how clinicians are involved in business management issues.	C.G.S.U.
It is required that there is a more organised management of risk by the directorates.	C.G.S.U.
I am a little bit concerned of whether the right people have jurisdiction to manage the risk.	C.G.S.U.
There is not a strong culture to make all contribute. It depends on the leadership of the areas.... We don't have the authority to pressure them.	C.G.S.U.
It's a change of culture to "no blame". But the directorates need proof that the Trust means this culture.	C.G.S.U.
I think it is an opinion that shared in pockets [risk management is important], there is an understanding at board level, but I'm not sure that people really understand it and are committed to its full sense of doing risk management within the organization.	C.G.S.U.
They know risk registers are important but because of their day-to-day work burden, the clinicians perceive it as an extra hustle. There is a lot of concern on why it should be done and some directorates do it just because they have to. Some directorates didn't want us to get involved at all; we have no input in their jobs.	C.G.S.U.
They have awareness of the importance of risk management, now. I think there are some problematic, but people has accepted clinical governance and risk management since last year. Since everybody is working fro the Trust they all want to improve patient care, that's an underlying, people recognise that things have to happen.	C.G.S.U.
Lessons learned is not a formal practice for risk management for the directorates.	C.G.S.U.
Risk Register	
I think the risk register provides a clear image of the risk of the department at that moment in time.	dir
With experience you improve. I don't think the risk register is very visual.	dir
The risk register is not a well maintainable tool. You can see I'm struggling with it.	dir
They tell me that it is accessible but I guess it is not accessible for the whole Trust.	dir
The risk registers are not accessible to all levels.	dir
I think if you talk to the senior management team in this directorate by which I mean the matrons, the senior sisters, the consultants, the directorate manager yes they will see it probably from the same perspective. But I think if you talk to what we might call the "shop floor" workers like the nurses, the junior doctors, I think they might not know much about the risk register.	dir
Just by reading the risk register you can see what issues there are.	dir
It can be quite time consuming. Another potentially weak point is that it can be alarming, quite reactive. This has helped the development of the risk registers. But it could be a weakness.	dir

The risk register provides a summary of risks in our directorate and reassurance that other people know.	dir
The risk register could be demoralising for the staff.	dir
The risk register helps managers to have an in depth understanding of what the issues are, and it provides you with the framework to take action.	dir
Risk register is an engine that generates information of what we need to know.	C.G.S.U.
This can be motivating, when they look back at what they have achieved.	C.G.S.U.
Communication	
I think the most important part of the solution is greater sharing of info. In terms of providing corporate information if you want good corporate information you'll have to invest in creating that information.	dir
Communication in the C.G.S.U.	
Some don't want to share.	C.G.S.U.
We encourage people to ask questions.	C.G.S.U.
Yes, we do discuss quite a lot with the facilitators at the meeting if we have problems. ... has an open door policy.	C.G.S.U.
If you have problems you can go to anybody.	C.G.S.U.
If there's something we've learned about the directorates I'll introduce it.	C.G.S.U.
It depends on the personality and character or individuals.	C.G.S.U.
It is essential that we share information, because something one has learned might be useful to me.	C.G.S.U.
For me, I think it's personality, I just think for some people they are not able to grasp what they should/ shouldn't be sharing.	C.G.S.U.
I want the teams to have more verbal communication and not use the e-mail so much.	C.G.S.U.
I am aware that if I come across something then. I've got the audit assistants meeting.	C.G.S.U.
The whole group gathers to discuss afterwards what went wrong, how it won't keep on happening.	C.G.S.U.
I expect them to talk about at least what lessons they have learned through something, in every meeting.	C.G.S.U.
Some facilitators might be nervous that they have done something wrong but that's human nature.	C.G.S.U.
[Communication] ...could be standardised because there is the risk that they [facilitators and audit assistants] are not well or timely informed.	C.G.S.U.
Communication between the C.G.S.U. and the rest of the directorates	
Normally by the time we receive it [feedback] from that source [C.G.S.U.] we already know [from] our own professional network.	dir
We work closely with the C.G.S.U.: they know how the process should be carried out, but [have] no clinical background to understand clinically what the issues and constraints are.	dir
Dedication on behalf of the directorates and support on behalf of the C.G.S.U. is needed.	Management of the directorate of healthcare governance
They are willing to do that [share], but again we have to go out there.	C.G.S.U.

They [directorates] want to know where they are going, I tell them that they have to fill the forms otherwise the Trust won't know about these risks and we can't act on things we don't know about.	C.G.S.U.
When there is change the directorates are more willing to talk about their risks.	C.G.S.U.
When they'll have tangible benefit they'll be more interested.	C.G.S.U.
Once the directorates see that the process works they'll be more encouraged.	C.G.S.U.
They [directorates] need to see that we are actually supporting them.	C.G.S.U.
We have to establish communication, I have established relationships with people in the directorates.	C.G.S.U.
It depends on how the clinical governance meeting works and what the relationships are among members of the clinical governance. You have to prove yourself that you're going to deal with their risk report responsibly, if they trust you.	C.G.S.U.
You have got a mixture in the room, some are really willing. Even in one directorate quite "closed" they share.	C.G.S.U.
If they don't get feedback they loose interest.	C.G.S.U.
It depends. I have a few who are very unhappy to talk about it. This happens when something has just happened in a very controversial way, very high level and there are many actions that have to take place.	C.G.S.U.
It is quite hard to bridge the gap in the levels of risk-related knowledge of each directorate/ each member of the clinical governance meeting.	C.G.S.U.
I don't have that many problems in making people interested.	C.G.S.U.
Quite keen... It's a matter of general knowledge of all the governance systems that are in place and depends on the DGM/ CD's [directorate general manager/ clinical director] support of risk management initiatives and actions to be taken.	C.G.S.U.
I feel that I collaborate quite well with them.	C.G.S.U.
Sometimes they don't collaborate. I think they are becoming to trust us more and more. Generally, it is quite frustrating.	C.G.S.U.
In the meetings, I think they are very willing to share. There is a lot of input to the risk register and they make comments.	C.G.S.U.
You have to be sure you communicate the right information.	C.G.S.U.
We are not the experts, we are the link.	C.G.S.U.
Intra-directorate Communication	
We also have within the directorate a clinical governance newsletter which obviously encompasses risk which comes out about every 2 months or so. And anybody can contribute to that.	dir
What we do is communicate new things ourselves. We communicate risk warnings coming from incidents in directorate meetings.	dir
Usually the doctors and trainees are there [in the clinical governance meetings]. Any staff can come, we frequently get 1-2 community midwifes, the matrons, etc. they are a very broad. There is always someone to speak from the clinical area. We have problems there; a doctor might be called out. The other thing that we have we are discussing the risk issue if we have the management group or clinical governance within the directorate people	dir

responsible for guidelines or audits.	
We try to encourage a no-blame culture. There are names, people pointed out. We have made clear that what we are trying to do is make the systems work or provide appropriate support in the clinical areas.	dir
If it's a wide forum, people are quite willing to contribute and we make sure that midwifes or junior doctors we try to involve these people in our discussion. I think sometimes the way that you handle the meeting is important. It's got to be fairly informal and very open.	dir
We don't discuss the non-clinical risks (e.g., H&S) at the clinical risk meetings, at the moment. We intend when we open a clinical risk meeting but we tend to just concentrate on clinical risks.	dir
And we'll start to ground regular operational meetings to make people contribute and comment.	dir
In these meetings we have a presentation from different specialties, a mixed representation of people we invite, we are a broad directorate with lots of areas.	dir
Well, I don't think anybody is reluctant to report but they might just come to a meeting and forget at the time that something has come to their attention.	dir
Because risk registers are quite locally owned and not shared I think that would make people more reluctant to share or report.	dir
In decision making, the identification of a specific action comes in agreement with the governors of the directorate. However, there could be a leak in the communication between the lead and the management team.	dir
We know the issues, but individual managers should be aware as well. No use of having the risks in the risk register if we cannot communicate them.	dir
They are interested in "how does this affect me" and not so much in collaboration. The politics exist. At initial stages they are better. It depends on the directorate and the people involved.	C.G.S.U.
But there is a gap between what is reported at local level and the high level of the hierarchy.	C.G.S.U.
The local risk registers are often discussed separately as the leads do not always participate in the clinical governance meeting. It's not the same for all directorates. Again it depends on the style of each facilitator and/ or the references of directorates.	C.G.S.U.
Inter-directorate communication	
I've got the risk register here but the question is where it goes from here. Some directorates, in case of a problem, communicate with other directorates via their clinical directors. Others believe it's the C.G.S.U. that has to communicate cross-functional risks.	dir
There were channels of communication before the risk registers, the risk registers have not created new ones.	dir
There are other multi-factorial risks affecting more than one department.	dir
Most of the significant risks that we have are things which are long standing and because we are a department which interacts with many other departments many of the actions that are required to resolve our risk are actions that we cannot do at the directorate. So, what happens is we highlighting them and discussing them with the other areas and achieving	dir

what we can achieve.	
I think we all have a problem with communication because we've got a very good chief executive chairman who does communicate with us and we are told what is going on, we have a mini bulletin, but we make the assumption that everybody goes on the intranet but in fact a lot of the ward staff don't they don't have access to it or they just don't have time they are so busy they just do their shift and go.	dir
Yes we do communicate with other departments. We don't have formal meetings.	dir
We work quite closely with obstetrics and obviously paediatrics as well. I think [when a risk affects other departments] we have a discussion and decide who's going to deal with the risk.	dir
On the whole very few discussions with other departments have been precipitated by the risk register. Because all the risk register has done is to allow us to put in a document things that we know for years and we've been trying to address for years. And so the channels of discussion were already open and active, before the risk register was even invented really. [laughs]	dir
But it's hard to get the openness that we've achieved within the department....	dir
There are issues of confidentiality and identification of patients and I think it's easier to be open about mistakes within a group than it is within a much wider group. There is always a fear when you go outside your own specialist area of criticism from others.	dir
I think there's a bit of a tendency on a Trust-wide level for people to use newsletters and things to show the good things. But to make clinical governance work is to share things that aren't so good, everything that could be done better.	dir
They don't appreciate the fact that they should contact ... who's the experts. So, we don't know that this risk exists and the Board noticed that it's your risk. We don't know that a situation occurred. That communication is the issue.	dir
Trust-wide they should but mostly don't [share].	dir
The meetings of our directorate are open to anyone interested. We invite certain people. But we don't really get people from other directorates coming.	dir
I think the fear is real, I think that within the medical profession there is a belief a ridiculous belief that doctors shouldn't make mistakes and therefore you should be very brave to stand up and say I made a mistake.	dir
One of the things that differentiate between consultants and more junior doctors, not all but in general terms is that as a consultant none of us is afraid to say we don't know what this is we need to speak to somebody else we need to get advice. At a junior level they think I should know this and therefore I'll just do what I think I should do.	dir
Within the nursing profession they historically, nurses have been, I am not talking about this Trust particularly but in nursing in general, there has been a punitive approach rather than an educational one...	dir
We are very familiar with the concept of risk. Maybe not in the context of the risk register. Yes, because it is a problem shared problem solved, if they share it is not going to be their own risk. I don't know whether other departments	dir

are willing to share their own risks but certainly we are very much in the spotlight and it's very important to me. Because if you are not open you are not going to get any support.	
There needs to be integration among various areas. There needs collaboration between the risk register leads, to analyse the risk register more closely and identify same risks in a systematic way and then push the lead to collaborate to manage them as well.	dir
At the moment we have identified risk across different directorates. With DATIX we categorise those risks and will be able to identify those risks which come under the same risk category and identify which directorates they affect.	C.G.S.U.
I think that some people try to involve more in the process, but don't know whether they are interested more than others. There are definitely different levels of enthusiasm.	C.G.S.U.
People are now collaborating more in a multidisciplinary team.	C.G.S.U.
The areas that used to function very independently find it quite hard to collaborate with other areas. I'll ask them to do it; if they don't I'll say "ok I'll organize the meeting between you and the other directorate; I'll be there as well, but without participating". If they don't communicate at all, I'll have to participate, but I prefer to let them communicate independently.	C.G.S.U.
I've never come across much unwillingness to do it... They are not used to talking to colleagues in other areas about their problems. They tend to see it as "I'm an ENT what does the urologist know about what I do".	C.G.S.U.
Open culture is a reality; people are willing to contribute what they know. They are not afraid. However, there is a blame culture in the clinical environment: specialties blame one another.	C.G.S.U.
They all say that this is my area, they recognise risks in their area, I don't know yet. It is something that will start to grow more and more as we interact with them.	C.G.S.U.
They are no really interested in what goes on, people are interested in what goes on in their dir, more than anybody else's. I won't use another dir as an example; they might say "I don't actually care what happened in the other dir". So, it's difficult.	C.G.S.U.
What they have to do is identify the risk in their risk register but then inform the other directorate (the lead of the other directorate). The directorates have to do it.	C.G.S.U.
As far as cross-functional risks are concerned it's up to the risk register lead to communicate them to the other directorates.	C.G.S.U.
The problems in the medical are different than the surgical areas. There are very different cultures, very different mentalities, very different priorities. I imagine it is historical. I think the surgical directorates learn more in independent units, whereas the medics learn more as medicine and then move on to specialties.	C.G.S.U.

Note: "dir": other (clinical and corporate) directorates