Definitions, reuse and technology:
How context impacts technology support for knowledge management.

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Abstract

Knowledge management has emerged as a central concept for improving an organisation's competitive advantage. It claims to improve performance though better reuse of knowledge, and by minimising the loss of valuable organisational knowledge when employees leave. Information technology is often promoted as the core of knowledge management solutions, often at the expense of understanding the cultural and social barriers preventing knowledge use in organisations.

Much of the research into knowledge management has taken the view that knowledge is an object that can be supported with technology tools, and hence has focused on explicit knowledge within organisations. This dissertation takes a different view, seeing the concept of knowledge as being intrinsically tied to an organisation's perceptions of their work and situation – i.e. situated and embedded within work practices.

The research question explored in this dissertation is, What is the relationship between group context, technology and knowledge management?

For this dissertation, knowledge management is defined as a systematic effort to share and use organisational knowledge within the organisational context so as to increased organisational performance. By understanding how knowledge is perceived, a perspective of knowledge management emerges with particular focus on the organisation's situation. Tools to support knowledge management can then be tailored to best suit the organisation.

This dissertation has used an interpretive case study approach to explore knowledge management in a large HRM department, using interpretive research assumptions. Data was collected through individual interviews, documentation review and observations. Holsapple and Joshi's Knowledge Management Influence Model and Markus' model of knowledge Reuse were used to analyse and structure the data collected from the case organisation.

The research findings confirmed that the work practices of the case organisation impacted on knowledge management activities. Within the HRM department, 2 distinct work groups existed with difference organisational
functions. Hence different knowledge reuse situations exist within the department, each having separate support needs.

A range of influences also impact knowledge management within the case organisation. Externally, Freedom of Information legislation acts as a disincentive for storing additional information in case files. Use of the current technologies available to the department is limited due to the high reliance on personal networks for information, which is assisted by a low staff turnover rate. In addition, the lack of a clear strategy for knowledge management makes it difficult to see how technology can be better positioned to support knowledge activities.

The perceptions of knowledge management showed that the lack of clear strategy led to unclear perceptions about the sources of knowledge, and the knowledge management objectives, methods and uses. However, from the perceptions explored in the HRM department a useful framework for further analysis was developed and represents an interesting future research opportunity.

The research findings clearly demonstrated the complexity of supporting knowledge management activities with technology in an organisation. Without understanding the current context of the organisation the design of any technology tools to support knowledge management would be unlikely to succeed. The HRM department consisted of two distinct work groups with different knowledge management and knowledge reuse needs. The external influences on knowledge management limited the amount of information staff were willing to store in electronic records, and generally technology was viewed unfavourably in the department.

This dissertation has clearly demonstrated that successful technological support of knowledge management would require careful consideration of work processes and organisational influences. Technology is a tool that must be tailored to fit organisational circumstances if it is to be successfully implemented within organisations, especially when supporting a socially dependent concept such as knowledge management.
Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Vanessa Freke

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Look Jenine, it’s done!

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1 Introduction

During the 1990's, Knowledge Management (KM) emerged as a concept to help organisations focus on managing and leveraging the knowledge within their organisations. The concept of KM grew from the resource-based perspective of the organisation, where knowledge is considered the focal resource for achieving competitive advantage (Grant 1996; Quintas, Lefrere et al. 1997; Wiig 1997; Alavi & Leidner 2001). Organisations have become more aware of the value of their knowledge and have come to realise that they are losing valuable organisational knowledge through employee attrition, and that finding or using knowledge within the organisation is often problematic (Alavi & Leidner 2001).

Much of the KM literature claims that the exploration and the exploitation of knowledge can be successfully and effectively facilitated by the use of Information Technology (IT) -based tools (Swan et al. 2000). However, KM should be seen as more than just another Information Technology (IT) application (Earl 2001). Technology has been seen primarily as a key enabler of KM, whereas it may also be a disabling influence if aspects such as social change and politics are considered (Swan et al. 2000). Organisational investments are required as part of a KM strategy, even in cases where the strategies are heavily driven by IT initiatives (Earl 2001).

A key premise of this research has been that knowledge is seen as being situated (i.e. subjective) and can be understood as “embedded in, and constructed from, social relationships” (Swan et al. 2000). Hence knowledge cannot be extracted from individuals as it is embedded in social relationships (Hunter & Beaumont 2002). Within organisations, knowledge is influenced by organisational structures and cultures (Hunter and Beaumont 2002).
Earl (2001) proposes three major schools of KM; the technocratic, economic and behavioural schools (the schools are discussed in more depth in chapter 2). Each school has different focuses and aims, as well as different IT contributions. Hence not all KM strategies are the same, or will benefit from the same IT support.

Within the systems development field, only around 30% of Information Systems (IS) projects are reported as successes and some authors argue that IS failures stem from a lack of understanding of the situated work practices within an organisation (Schultze & Boland Jr 2000). The research presented in this dissertation has explored the context of an organisation in order to understand the areas in which IT might provide support for KM.

The research question explored in this dissertation is, **What is the relationship between Group Context, Technology and Knowledge Management?**

The research sub-questions are:

- How does the group carry out work, and are there distinct differences in work patterns between groups within the organisation? Especially, how is technology used, perceived and wanted within the groups of the organisation?

- How are knowledge management, and knowledge perceived within the group?

- How can technology be used to support knowledge management efforts within the group, taking into consideration the work patterns and influences on knowledge management?

The objective of this research has been to develop a framework that takes into consideration the group context in which KM occurs, so that appropriate opportunities for IT support can be identified.

1 Not implying a causal, quantitative relationship
An exploratory case study has been conducted to answer the research question. The research site that was explored is the HRM department of a large university. The department employs approximately 70 staff and serves over 2,500 staff. At the time of the research, the department did not have an explicit KM strategy although the department was interested in the benefits that KM might offer.

This chapter is an overview of the research that is reported in the rest of the dissertation. It outlines the research context and question, along with the research objectives and strategy, before concluding with an introduction to the rest of the thesis.

2 The Research Context

The research question that has been addressed is, what is the relationship between group perceptions of knowledge, technology and knowledge management? In this chapter, section 2.1 briefly discusses the significance of the research project before the key definitions for the research question are given in section 2.2. This research has been conducted within the stream of Information Systems (IS) research and a brief discussion of IS research is presented in section 2.3. Section 2.4 of this chapter briefly discusses the concepts behind KM. A critical review of the literature on KM and related areas is given in Chapter 2, Literature Review.

2.1 Significance of the Research Project

Knowledge has been advanced as the only source of sustainable competitive advantage for the future, making it possibly the most important organisational asset (Schultze 1998, 2002; Moody & Shanks 1999; Zack 1999). With the growing amount of knowledge available to organisations, organisational knowledge needs to be effectively managed and leveraged so as to deliver its promised benefits. Practitioners lack a clear and shared view of what KM is,
and how it can be performed (Holsapple and Joshi 1999; Zack 1999; Ndlela and du Toit 2001).

Managing organisational knowledge has not proven to be easy. Some organisational knowledge is easily identified and captured, often in written form. The KM literature refers to such knowledge as explicit knowledge. This is in contrast to tacit knowledge, which is subconsciously understood and applied (Zack 1999).

However, a significant amount of organisational knowledge is not explicit; it exists in the minds of employees, and in organisational routines, norms and values (Davenport & Prusak, 1998). Organisational knowledge may exist in many different repositories and processes, and discovering such knowledge may be difficult. Moreover, when personnel leave an organisation, they take with them valuable knowledge as artefacts or understanding of processes. Hence the identification and leverage of organisational knowledge requires a wide-ranging strategy, often referred to as Knowledge Management (KM).

Technology has long been widely accepted as an essential tool for modern business. Information Technology (IT) based tools have been promoted as the key enabler of KM (Swan et al. 2000). However, many KM tools do not live up to their promises regarding improvements to organisational performance (Swan et al. 1999). Often software solutions may be too narrow in their focus or unsuitable for the organisation’s context or needs. Too often, KM tools focus on explicit (precise and formally articulated) knowledge, neglecting the important tacit (non-articulated, subconscious) knowledge held by organisational members (Bontis 2001).

The purpose of this research is to investigate how knowledge activities are carried out, and how technology is used (or not used) within knowledge activities. Importantly, this research will also look at the context in which the knowledge activities take place,
proposing that the group context will affect how the knowledge activities are carried out and how technology can be used.

The key definitions relevant to the study are presented in the next section.

2.2 Key Definitions

Definitions of key terms used in this study have been provided in the following paragraphs. Key definitions have been provided to ensure that readers of this dissertation have a shared understanding of the concepts central to the study. A full discussion of knowledge and organisational knowledge is given in section 3.2 of the literature review. KM is also discussed in more depth in section 4 of the literature review.

Knowledge is seen as being socially defined, and hence different groups will have different views of knowledge. Knowledge is, “embedded in, and constructed from, social relationships” (Swan et al. 2000). The differing views of knowledge within the case organisation will be examined using the perspectives presented by Alavi and Leidner (2001).

Organisational Knowledge is seen as knowledge within the social context of a specific organisation. Within this study, the group perceptions of knowledge have been explored using the concept of organisational knowledge, and the terms are used interchangeably. Organisational knowledge is seen as embracing information, action and people (Vanhoenacker et al. 1999). Hence organisational knowledge, “often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices and norms” (Davenport & Prusak, 1998, p.5).

Knowledge Management is defined as a systematic effort to share and use organisational knowledge within the organisational context so as to increase organisational performance.


2.3 Information Systems Research

This study has been conducted within the Information System research field. As such, the “technological” focus is on the systems that organisational members utilise as part of their work.

Commonly, IS are defined as either technical systems with social implications, or social systems only technically implemented (Goldkuhl & Lyytinen 1982 in Iivari 1991). Within this research study IS are viewed as social systems, technically implemented. In line with this view, the following definition of IS has been adopted based on the work of Buckingham et al., 1987 (in Avison and Wood-Harper 1990:4):

“An IS is a system which assembles, stores, processes and delivers information relevant to an organization, ideally in such a way that information is accessible and useful to those who wish to use it, including managers, staff, clients and citizens. An Information System is a human activity (social) system that involves the use of computer systems”.

Within IS research there are many different areas in which to explore IS as social systems with technical implications. The study discussed in this dissertation looks at Knowledge Management from an IS perspective. The following section provides an overview of KM research. A full literature review of KM can be found in Chapter 2, Literature Review.

2.4 Knowledge Management Research

Knowledge Management (KM) is a popular topic in IS research. Since the development of theories that postulated that resources (rather than the external environment) should be the basis for organisational strategy (Grant 1991) organisational resources have become the focus for competitive advantage.
A key aspect of any resource that provides competitive advantage is that it should be hard to imitate or acquire, and idiosyncratic (Grant, 1997). Grant argues that of all organisational resources, only knowledge meets these conditions; hence knowledge is the most strategically important resource for an organisation, delivering competitive advantage (Grant 1996; Quintas et al. 1997; Wiig 1997; Alavi & Leidner 2001). A KM strategy refers to a systematic effort of manage their organisational knowledge (Alavi & Leidner 2001).

KM is a term that is often ambiguous and ill defined. A survey of South African managers within an electricity firm found that while all the managers thought that KM was important to business, there was no common definition of what it entailed (Ndlela & du Toit 2001).

There are many different definitions available in the literature, for example see (Edwards & Mahling 1997; Schultze 1998; Hendriks & Vriens 1999; Rosemann & Chan 2000; Nermati et al. 2002).

Many definitions of KM centre on activities that are enacted on knowledge, although there is no accepted ‘set’ of activities (Alavi & Leidner 2001; for examples of KM activities see, Alavi 1999, page 19; Rademacher 1999). Other definitions are concerned with the value that managing knowledge can add to an organisation (for example Rosemann & Chan 2000). Some definitions of knowledge include both activities and the context in which they take place (see Schultze 1998; Hoffmann et al. 1999). A discussion of the different definitions of KM is given in Chapter 2, Literature Review.

In this research focus has been on both the use of knowledge and its context. Therefore a combination of the definitions from Hoffmann et al. (1999) and Alavi and Leidner (2001) has been derived:

KM is defined as a systematic effort to share and use organisational knowledge within the organisational context so as to increase organisational performance. The perception of knowledge will also be explored from the perspective of the case study organisation.
Chapter 1: Introduction to the Thesis

The premise of this definition is that effective KM requires focusing on supporting organisational members carrying out KM activities. Understanding the group context is an important step in understanding how to best support knowledge activity work. Success of Information Technology (IT) solutions for more traditional IS such as MIS and DSS is around 30% and some authors argue that the lack of success can be attributed to a lack of understanding of user’s work practices (Schultze & Boland Jr 2000).

The importance of organisational context in understanding KM has been reflected in the number of investigations into KM that focus on describing KM activities or initiatives (see for example Skok, 1999; Sumner, 1999; Standing and Benson, 2000). However, most KM research is concerned with the creation of information (Schultze 2000) and does not address issues such as culture, leadership, motivation and rewards in any depth (Swan et al. 2000).

Information Technology (IT) has been promoted as the key to enabling successful KM (Swan et al. 2000), where the role of technology is to support knowledge processes (Snis 2000). However, often software solutions may be too narrow in their focus or unsuitable for the organisation’s context or needs. The failure of systems in general can be attributed to the failure to understand the situated work practices in the organisation (Schultze and Boland Jr 2000). Too often, KM tools focus on explicit knowledge, neglecting the important tacit knowledge held by organisational members (Bontis 2001). This may reduce tacit knowledge to background despite it’s proposed strategic offerings (Johannessen et al. 2001).

Studies into IT and KM can be easily found (examples include Hoffmann et al., 1999; Kautz, 2002; Zack, 1999). However, there seems to be little research that investigates the organisational context and IT with respect to KM. One study that did consider organisational context, IT and KM is the work of Snis (1998, 2000).
who studied KM activities, with one intended outcome to inform the
design of IT support for KM. Snis's research was focused in a
pharmaceutical company and was limited in generalisability (as many
rich field studies are). Another study that explored KM, context and
IT was Massey et al. (2002), who used Holsapple and Joshi's
framework to show the factors that influenced Nortel's [a
telecommunications company] successful KM initiative. Nortel
developed a process-oriented KM strategy for new product
development which had 3 parts; process, people and technology.
This study complements Snis's (1998, 2000) and Massey et al.'s
(2002) work by providing a similar study of organisational context, IT
and KM within a different organisation type (Human Resource
Management department).

The discussion here has been included as an overview of KM; a full
literature review is given in chapter three. However, it can be seen
that KM is not a well-defined or understood concept, despite
knowledge being recognised as a strategic resource for
organisations. Most studies that address KM and IT do not attempt
to study the softer, people issues that occur in organisations. An
opportunity exists to explore KM and IT, taking into consideration the
group context in which KM is occurring. By exploring the group
context an understanding of the users work should be gained, and
this can then be used to design IT to support KM which should be
better fitted to and accepted within the organisation.

3 Research Question

As mentioned earlier, the research question addressed here is, What
is the relationship between Group Perceptions of
Knowledge, Technology and Knowledge Management?
3.1 Research Objectives

This research has provided a framework that can be applied within organisations to help determine how to configure IT for the support of KM. Each interview included discussion of group perceptions, the work context and technology use. This research explored the following questions, listed with the chapters in which they are discussed:

- How are knowledge management, knowledge and organisational (group) knowledge perceived within the group? *Discussed in Chapter 6*
- How does the group carry out work, and are there distinct difference in work patterns between groups within the organisation? Especially, how is technology used, perceived and wanted within the groups of the organisation? *Discussed in Chapter 5*
- How can technology be used to support knowledge management efforts within the group, taking into consideration the work patterns and influences on knowledge management? *Discussed in Chapter 7*

The second chapter is discussed first, to give context to the perceptions and examples given by participants regarding KM.

The main research objective of this study has been to explore the influences on KM within an organisation, so as to understand the practice of KM and to inform the design of IT support for KM.

A key part of this research has been to understand the organisational and group context of KM, and to use that understanding to inform the design of IT. The framework presented in Chapter 6 provides an illustration of the elements of knowledge management, from the perspective of the group. This framework could be applied in future
research into KM to further understand how to integrate technology support for knowledge management.

Further, this research has also validated Markuses’ 2001 model as a useful tool for modelling work within an organisational group, and Holsapple and Joshi’s (1999, 2000, 2001, 2002a, 2002b, 2004) knowledge management influence model.

This research has also provided a rich description of an organisation that is considering KM and the challenges that the organisation may face or need to consider in doing so. This case study will be of use to other KM researchers, or to practitioners seeking to understand KM cases.

4 Research Strategy

The research study reported in this thesis is an interpretive study using the case study methodology. Data was collected through individual interviews, documentation reviews, and observations (of artefacts and meetings). The data was analysed using the KM Influence Model presented by Holsapple and Joshi (1999, 2000, 2001, 2002).

5 Overview of the Thesis

Chapter 2 provides an overview of some of the existing literature concerned with KM. The KM literature review is focused primarily around Information Systems (IS) KM literature. Perceptions of KM are explored along with the results from case studies that have been reported.

Chapter 3, Research Strategy and Design, highlights the approach taken to research. The research assumptions, approach and method are discussed.

Chapter 4 Theoretical Frameworks gives details about the theoretical frameworks used in analysing the data presented in Chapters 5, 6
and 7. Chapter 4 also provides the rational for selection of the research site as well as a description of the research site and the industry in which it operates.

Chapter 5, Work Context and Knowledge Reuse Situations describes the context of work within the HRM department. The HRM department’s strategy, purpose and infrastructure separate the functional and strategic work of the department and this leads to multiple knowledge reuse situations with different knowledge management needs.

Chapter 6 describes the HRM department’s perspectives of knowledge and knowledge management. Analysis of the perceptions of knowledge and knowledge management led to the development of the Elements of Knowledge Management framework, which has the potential to allow further analysis of knowledge management within the HRM department and other groups interested in knowledge management.

Chapter 7 examines the influences on knowledge management using Holsapple and Joshi’s (1999, 2000, 2001, 2002a, 2002b, 2004) knowledge management framework. Identification of the major influences on knowledge management combined with findings from the work context allow identification of opportunities where technology may be used to support knowledge management.

Chapter 8, Conclusion, draws together the findings and analysis. The conclusion also provides an evaluation of the rigor of the research based on the criteria developed by Klein and Myers (1999).
Chapter 2: Literature Review

1 Introduction

The purpose of this chapter, Literature Review, is to outline the literature in the area of Knowledge Management (KM). This chapter discusses the emergence of KM, the difference between data, information and knowledge, (including the tacit/explicit knowledge distinction), and the range of definitions of KM that are found in the literature.

2 The Emergence of Knowledge Management

The concept of Knowledge Management (KM) emerged during the late 1980s and early 1990s. A key premise of KM is that knowledge is an important resource within organisations that can be leveraged to improve organisational performance. As an important organisational resource, it follows that knowledge should be managed in a similar fashion to traditional resources such as raw materials and physical labour.

KM has recent origins in data and information management and also organisational learning. Knowledge management is becoming increasingly important, however, as organisations start to view the knowledge within their organisation as a highly valuable asset. Knowledge is being seen as an asset due to the changing face of organisations, where innovation is gained from better access to knowledge; and issues such as development time and time to market are becoming the keys to organisational success.

From a strategic viewpoint, the emergence of the resource-based view of a firm in the 1980s first focused attention on the internal assets of an organisation and their relationship to competitive advantage. The consequent notion of organisational core competencies and the development of the knowledge-based view of
firms further focused attention on the skills and abilities needed to carry out activities within a firm, activities which in turn add to organisational value and competitive advantage. The resource-based view of the firm is further discussed in section 2.1 of this chapter; section 2.2 of this chapter focuses on the concept of core competencies.

Another area that has contributed to enhancing the importance of knowledge within firms is the notion of intellectual capital, which is discussed further in section 2.3 of this chapter. From an intellectual capital viewpoint, knowledge is explicitly identified as an organisational asset that may be exploited. The resource-based view has a strong theoretical base, whereas intellectual capital emerged mostly from work by practitioners; Intellectual capital researchers are now trying to better understand and add rigor to the area.

The increases in capacity of technology along with the introduction of resource-based approaches and the concept of intellectual capital have lead to an increase in the overall volume of information that can be accessed by organisations. Increased access to information has also led to the notions of 'knowledge workers' and 'the information revolution'.

With an organisation’s knowledge being seen as key to competitive advantage and the increasing awareness of intellectual capital within organisations, the concept of knowledge management has become a topical area of Information Systems (IS) research. The following sections deal with the resource-based view (and subsequent developments) and intellectual capital in more detail.

2.1 The Resource-Based View of the Firm

The emergence of knowledge as a strategic resource for organisations has a strongly grounded theoretical base within management literature. As a reference discipline for information
systems research, some of the key management literature that has supported the idea of knowledge as a resource is reviewed here.

The resource-based view of the firm emerged within the strategic management literature during the 1980s and 1990s. Based on older work, especially that of Penrose (1959), the resource-based view of the firm offers a model of how firms compete (Peteraf 1993), and how firms develop and sustain competitive advantage (Raub 2001)(page 97).

Key work on the resource-based view includes that of Wernerfelt (1984) and Grant (1991). Wernerfelt's work is an early paper that looked at the resources of a firm as a basis for strategy, rather than looking at the products of a firm. Wernerfelt (1984) argues that by focusing on the resources of a firm, a different set of strategic options can be considered (than if attention was concentrated on a firms products). Grant's 1991 paper dealt further with the resource-based view and competitive advantage (Grant 1991). Grant's paper presented a practical framework for a resource-based approach to strategy analysis.

The link between strategy and the external environment was the main focus for strategic analysis in the 1980s (e.g. Porter's competitive forces). By the early 1990's, dissatisfaction with (then) current business strategy thinking led to a renewed interest in the role of organisational resources as the foundation for business strategy (Grant 1991). Organisational resources offer a more durable basis for business strategy development as the external business environment becomes increasingly turbulent (Grant 1996).

The resource-based view of organisations sees firms as a “bundle of assets, routines and knowledge that must be identified, selected, developed and deployed to generate superior performance”(Baden-Fuller and Volberda 2001). The business strategies adopted by firms are those that their resources can support. The critical task for a
firm is to “use its available resources to the greatest end they can support” (Peteraf 1993).

A resource-based approach to strategy involves not only the deployment of resources but also the constant development of the firm’s resource base. Constant resource development is necessary to sustaining competitive advantage given competition and evolving customer requirements (Grant, 1991). From a resource-based view, competitive advantage is drawn a firm's capabilities, where resources are the basis for capabilities. In order to maintain competitive advantage, barriers to entry are required. Barriers to entry are based on resources that potential competitors cannot easily or cheaply acquire (Grant, 1991).

Grant (1991) identifies four characteristics of resources and capabilities that are likely to lead to sustained competitive advantage: durability, transparency, transferability and replicability. These characteristics are discussed in the table below.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Durability</td>
<td>Resources and capabilities that are durable (i.e. long lived) contribute to competitive advantage.</td>
</tr>
<tr>
<td>Transparency</td>
<td>To imitate a rival's business strategy, a firm needs to identify the capabilities leading to the rival's competitive advantage, and also the resources that underlie the capabilities. Complex capabilities that involve a number of resources are harder to identify.</td>
</tr>
<tr>
<td>Transferability</td>
<td>Acquisition of the resources that lead to competitive advantage should be difficult; else the competitive advantage will be short lived.</td>
</tr>
<tr>
<td>Replicability</td>
<td>Internal investment in resources and capabilities should not allow easy imitation of another firm's competitive advantage. Complex capabilities are harder to replicate than simple capabilities.</td>
</tr>
</tbody>
</table>

*Table 1: Description of Characteristics of Resources and Capabilities necessary for Competitive Advantage; adapted from Grant, 1991.*

The work of Grant (1991) led to further consideration of resources and the role that they play in an organisation’s competitive advantage. The resource-based view of the firm can be seen as a predecessor of the competence based view. Within the competence based view, firms exist “because they are mechanisms that
are capable of building and exploiting unique knowledge and competencies” (Baden-Fuller and Volberda 2001) (pg 114).

Core competencies are “complex organisational properties that result from organisational learning and, as such, are hard to imitate and substitute” (Raub 2001). Prahalad and Hamel’s 1990 article is widely accepted as being seminal in bringing both the ideas of core competencies and the resource-based view of the firm into mainstream management and strategy literature (Raub 2001).

Prahalad and Hamel (1990) use the metaphor of a tree to describe core competencies. The roots (core competencies) of a tree are invisible, but are an integral part of the strength of the tree (the organisation). Collective learning in the organisation leads to core competencies. However, core competencies must be used; through use and application competencies are enhanced, whereas competencies will fade and be lost if unused.

Core competencies developed from the ideas of the resource-based view of firms; from core competencies and the resource-based view (among other influences) came the knowledge-based theory of organisational capability (Grant, 1996; 1997).

The knowledge-based view of the firm is an extension of the resource-based view. The resource-based view of organisations argues that resources are combined to form capabilities that lead to competitive advantage (Grant 1991). The knowledge-based view of the firm argues that of all organisational resources, it is only knowledge that can deliver sustainable competitive advantage (Grant 1996).

Sustainability of competitive advantage requires resources to be idiosyncratic, and not easily transferable or replicable. Hence knowledge, and especially tacit knowledge, appears as the most strategically important resource of the firm (Grant 1996).
The emergence and increasing acceptance of the resource-based view of firms has led to a focus on knowledge, and how knowledge is used within organisations. The focus on organisational knowledge as a key determinant of strategy can be seen as one of the reasons that knowledge management is of interest to practitioners, and hence researchers.

Another area that has emerged recently and can be seen to have lead to interest in knowledge management is that of intellectual capital. While the resource-based view has a strong theoretical background, intellectual capital has developed from practitioner interests.

### 2.2 Intellectual Capital

The resource-based view has a long and well-developed theoretical base. The concept of Intellectual Capital (IC) developed in the opposite manner, starting at a grassroots level.

There are many different accounts and definitions of intellectual capital. One of the earliest and most cited examples comes from Skandia AFS, and the work published by Edvinsson (e.g. 1997, and with Malone, 1997). Skandia AFS set out to discover and measure the ‘hidden value that was complementary to their traditional balance sheet. Skandia AFS came to define IC as human capital plus structural capital.

IC is generally seen as an attempt to value the intangible capabilities, relationships and processes that bring value to an organisation. Components of IC can include human (individual capabilities), social (collaborations and relationships) and structural capital (routines and processes) (Bontis 2001; Jordan and Jones 1997; Edvinsson 1997).

However the different parts of intellectual capital are conceptualised, the intellectual capital field has explicitly identified the role of
organisational knowledge (human capabilities or capital) in bringing value to an organisation. The explicit identification of organisational knowledge has contributed to the emergence of knowledge management as an important issue for organisations.

Seemann et al (in Morey, Maybury and Thuraisingham, 2000) see the relationship between KM and IC as described in the following quote:

KM is “the deliberate design of processes, tools, structures etc with the intent to increase, renew and share, to improve the use of knowledge represented in any of the three elements [human, social and structural capital] of intellectual capital”

Similarly Wiig (1997) sees KM (related to IC) as

“more detailed and focuses on facilitating and managing knowledge-related activities such as creation, capture, transformation and use. Its [KM’s] function is to plan, implement, operate and monitor all the knowledge related activities and programs required for effective intellectual capital management.”

Bontis argues that the focus for KM is too often on the structural capital of an organisation (building systems etc) when in fact all three parts of intellectual capital – human, relational and structural – are and need to be related. Without understanding the interrelationships between the three parts of IC, the effectiveness of KM efforts are often constrained.

The concept of intellectual capital has promoted the idea of organisational value coming from more than the structural capital of organisations. Human (and social/relational) capital can be seen as the hidden value within an organisation. A key component of human capital is an employee’s knowledge; their skills, capabilities and
experience. Hence the concept of intellectual capital has again identified knowledge as a key part of organisational value.

Knowledge as a resource or capital has become a widespread concept that has gained popularity in both theory and practice. Organisations are now aware that their knowledge is responsible for at least some of their competitive advantage.

Organisations are keen to manage valuable resources so as to leverage the most benefit from them. Knowledge is no different and attempts to manage knowledge generally fall under the concept of “Knowledge Management”. However, before discussion of knowledge management occurs, the nature of knowledge needs to be discussed. In the following section, the nature of knowledge as a resource is explored. Following this the concept of knowledge management is introduced and discussed.

3 Data, Information and Knowledge

The previous section of this chapter discussed two of the concepts (the resource-based view of the organisation and intellectual capital) that have led to organisational interest in knowledge. However, knowledge is a slippery concept to define, if it can be defined at all.

It is generally accepted that knowledge is somehow related to data and information, and that knowledge, information and data are different. In section 3.1, data and information are discussed. Definitions of information and data are fairly non-contentious; data is seen as raw facts and information as organised, collated data. Definitions of knowledge are not so readily agreed upon. There are several different perspectives of knowledge that may be adopted (for example, knowledge as an object or knowledge as embedded within a community) and these are discussed in section 3.2. For the purposes of this dissertation, knowledge is seen as embedded within a community.
3.1 Data and Information

Because knowledge is so often defined in terms of data and information, a clear understanding of both data and information is a pre-requisite for a discussion of knowledge. It is important to note that it is predominately within IT literature that most discussions and definitions of knowledge begin with data and information (Alavi and Leidner 2001). Other bodies of literature discuss and define knowledge differently, and some of these areas will be drawn on in the discussion of knowledge.

Unlike knowledge, which has many different perspectives, the definitions of data and information are widely accepted. Data is seen as raw (Raisinghani 2000), isolated (Tuomi 1999) or discrete facts (Davenport and Prusak 1998), or as the results of observations (den Hertog and Huizenga 2000).

Information is seen as something more than data. Data becomes information through conceptualisation and categorisation (Jarke, Klemke et al. 2001), or when data is placed in a meaningful context (Zack 1999; Wu 2000). Information is seen as formatted (Raisinghani 2000), or logically sorted data (Clarke and Cooper 2000); data with a more specific meaning (den Hertog and Huizenga 2000) or data that makes a difference (Davenport and Prusak 1998). Some see information as a message (Nonaka and Takeuchi 1995; Davenport and Prusak 1998; Wilson 2002).

If knowledge is defined using data and information, all three are commonly shown in a pyramid relationship (for example, (Wu 2000)).

This is not to say that the relationship between knowledge, data and information has been resolved. Tuomi (1999) argues that the traditional pyramid of data, information and knowledge needs to be reversed, with implications for KM and IS that support knowledge and knowledge practices. Tuomi argues that we start with
knowledge, and by articulating, verbalising and adding structure create information. By then fixing representations and interpretations to information, we create data. To support this idea, Tuomi uses the development of computer systems as an example (Tuomi 1999).

When articulated knowledge is stored in computer memory, the information within the knowledge needs to be represented. Information is then split into atoms that have no meaning to allow automatic processing. Using a database analogy, this means taking some form of knowledge, structuring the information contained within the knowledge into a conceptual design for a database, and finally fixing representations and interpretations for data within each element.

Whether the hierarchy is traditional or reversed, the “tip” of the pyramid is always knowledge. Definitions of knowledge are discussed in the next section.

3.2 Knowledge

In any discussion of knowledge, it is important to note that there is no consensus within KM on what knowledge is, apart from being hard to define (Hlupic, Pouloudi et al. 2002). Often knowledge and information are used interchangeably (Hlupic, Pouloudi et al. 2002), leading some to question the difference between knowledge and information management.

Within this chapter, organisational knowledge is used interchangeably with group knowledge, to emphasise the focus on the group as a unit of analysis (see Chapter 3 for more detail).

Some work (i.e. intellectual capital) assumes that knowledge can be decomposed into objective elements. Other work sees knowledge as linked to the social and learning processes within an organisation (McAdam and McCreedy 1999). It is important to explain what is
meant by knowledge in research because different understandings lead to different theoretical developments in KM (Alavi and Leidner 2001). For organisations, understanding their perspective on knowledge is important because it will lead to different KM efforts (McAdam and McCreedy 2000; Kamara, Augenbroe et al. 2002).

Some research views knowledge as an object that can be manipulated. From this viewpoint, knowledge is simply formatted information (Raisinghani 2000) or a collection of rules and information to fulfil a specific function (den Hertog and Huizenga 2000). This has led to the examination of different types of knowledge, ignoring the social settings in which knowledge is created (Styhre, Ingelgard et al. 2001). The view of knowledge as an object is closely related to the scientific view of knowledge, where knowledge is a body of facts that are not open to social interpretation (McAdam and McCreedy 2000).

The view of knowledge as an object is often questioned when it is applied to organisations. Vanhonenacker et al (1999) purport that organisational knowledge constitutes more than documentation; organisational knowledge is made up of information, action and people. Davenport and Prusak (1998) support this view stating that,

“[Organisational Knowledge] … often becomes embedded not only in documents or repositories but also in organisational routines, processes, practices and norms.”

Hence organisational knowledge can be seen as the collection of organisational information, processes, individual values and beliefs. While some research claims that beliefs and values may be captured as objects, it is generally accepted that only individuals hold beliefs and values. Hence another perspective on knowledge has the common theme that there is some human element involved in knowledge.
Snis (2000) sees knowledge as produced by human involvement with information; "...knowledge ... is closely related to information but are not of the same meaning". Wilson (2002) sees knowledge as "what we know", where knowledge only exists in the mind of an individual. Similarly, Alavi and Leidner (2001) see knowledge as "information possessed in the mind of individuals; it is personalized information".

Flowing from definitions that acknowledge the human element of knowledge are definitions that see knowledge as a socially situated activity. If this perspective is adopted, then there the scientific view of knowledge is rejected, and knowledge is socially constructed rather than a universal truth (McAdam and McCreedy 2000). Knowledge cannot be extracted from individuals but is enacted and held between individuals (Hunter and Beaumont 2002).

Researchers that have adopted the view of knowledge as a socially situated activity include Spiegler (2003), who sees knowledge as embedded in a social context: "knowledge is the process of knowing, a reflexive process that takes data and information, in a social context, mixes the ingredients and factors listed above, to generate new data, information and/or knowledge" (Spiegler 2003). Hislop (2002) sees knowledge as an epistemology of practice, which also sees knowledge socially constructed. From this perspective, "[knowledge] does not exist outside of knowing subjects and ... knowledge is deeply embedded within and is inseparable from practices and activities that people undertake" (Hislop 2002).

Most research has not considered the situational, embedded view of knowledge. This has been shown in the focus of knowledge management research on the distinctions between different types of knowledge (Styhre, Ingelgard et al. 2001; Hlupic, Pouloudi et al. 2002) and how to manipulate the knowledge object within organisations (Schultze 1998). Within knowledge management research, a situated view of knowledge has not been widely explored.
(an example of KM research that did use a situated view of knowledge is Styhre et al, 2001).

3.2.1 Tacit and Explicit Knowledge

The distinction between explicit and tacit knowledge is widely discussed and accepted within KM literature. Explicit knowledge can be precisely and formally articulated, and is codified in the form of organisational procedures, policies, manuals and programs. Tacit knowledge is non-articulated, and cannot be manifested as rules. Tacit knowledge is subconsciously understood and applied, is hard to articulate using formal language and is developed from experience. It involves individual experience, beliefs, perspectives and values. Tacit knowledge exists (for example) in domain expert’s skills, in the heads of employees, in accepted but un-codified organisational practices (Clarke and Cooper, 2000; Yu-N and Abidi, 2000; Nonaka and Takeuchi, 1995; Schultze, 1998; Tuomi, 1999; Zack, 1999).

As discussed in the previous section, knowledge may be viewed as an object or as a more complex social construction. If knowledge is viewed as an object, then the explicit/tacit dichotomy is exclusive, i.e. knowledge is either explicit or tacit. Tacit knowledge resides in individuals, whereas explicit knowledge exists “independently of human bodies” (Hislop 2002).

If knowledge is viewed from a social construction perspective, then it can be argued that explicit and tacit knowledge co-exist, i.e. one cannot exist without the other (Hislop 2002). Explicit knowledge cannot be understood without tacit knowledge of the society in which the explicit knowledge has been created.

For the purposes of this dissertation, the explicit/tacit dichotomy has not been addressed. Given that a social construction perspective of knowledge has been adopted, it is accepted that all knowledge has
explicit and tacit dimensions and hence discriminating between the two is not a priority for this research.

Knowledge is a hard to define concept. However, if organisations are to use their knowledge resources for competitive advantage, an understanding of the different perspectives on knowledge is required. Understanding knowledge as an object or as a product of social construction leads to different perspectives on KM. In the following section, the definitions of KM from the literature are discussed.

4 Knowledge Management

Ives, Torrey and Gordon (1998) see KM as, “the effort to make the knowledge of an organisation available to those within the organisation who need it, where they need it, when they need it, and in the form in which they need it in order to increase human and organisational performance”. Edwards and Mahling (1997) define KM as “…the organised effort to capture, organise and share the knowledge of employees for the achievement of a shared strategic goal”. Rademacher (1999) defines KM as comprising activities necessary to discover, acquire, store, manage, develop, disseminate and use knowledge.

Schultze (1998) states that KM,

“...addresses the generation, representation, storage, transfer, transformation, application, embedding and protection of organisational knowledge. It is also concerned with establishing an environment and culture in which knowledge can evolve”.

Here the author not only addresses the knowledge processes or activities, but also mentions two of the factors that may affect KM within an organisation.
By specifying the activities involved within KM, the second group of definitions provides a guide for KM activities within an organisation. The final group of definitions are concerned with the concept of a KM system, rather than just KM.

Alavi (1999, page 19) defines a KM system as,

“...an IT-based system developed to support and enhance the primary organisation knowledge management processes of knowledge generation, knowledge codification and knowledge transfer”.

Hoffmann et al’s definition of a KM system provides support to the organisational processes of development of new knowledge, preservation of knowledge, distribution of knowledge and the recombination of knowledge. Similar to Schultze (1998), the authors include factors that may affect KM within the organisation. They define a company’s KM System as encompassing,

“organisational, social and technological sub-systems. From our point of view, KM combines continuous organisation design, development of human resources, and innovation of technology. Success can only be ensured by simultaneous development of all parts of the KMS and their mutual adoption.”

While all the definitions can be seen as correct, the last group (concerned with KM systems) provides the recognition that KM is a complex concept that involves not only activities but also influences from the organisational environment. Schultze's (1998) definition also provides this focus. Since this research has focused on both knowledge processes and their context, a combination of the definitions from Hoffmann et al (1999) and Alavi (1999) has been derived:
KM is defined as a systematic effort to share and use organisational
knowledge within the organisational context so as to increase
organisational performance.

5 Knowledge Management Studies in the
Literature

The previous sections of this chapter have focused on the concepts
of knowledge and knowledge management. In this section empirical
studies that have investigated knowledge management are
discussed.

Schwabe (1999) presents a paper outlining a framework for
analysing Knowledge Management in formal decision groups, such as
City Councils. Using his framework requirements for socio-technical
support of knowledge management are identified. Schwabe goes
onto show how the Cuparla System has been used to support
Knowledge Management within the Stuttgart City council.

Schwabe argues that central administration (such as in the Stuttgart
City Council) can provide an environment in which productive
Knowledge Management can occur. This environment should be a
mix of organisational support, person based information services and
a computer based information system. The Stuttgart City Council
has used the Cuparla System as the computer based information
system of the environment, and it has been successful in
contributing to the improvement of council work. Schwabe concludes
by mentioning that the Cuparla System is to be commercialised by
German Telekom, further re-enforcing the findings that the system
was effective in supporting Knowledge Management.

Moody and Shanks (1999) describe a highly successful Knowledge
Management project within the Australian medical sector. The
Internet was used to make the latest medical evidence available at
the point of care, i.e. in hospitals and doctor’s surgeries, to improve
the quality of clinical decision-making. It was highly successful, with 90% of medical users agreeing that the system had improved quality of patient care. The system has also won a number of awards for excellence in information management, demonstrating the effective role that IT can play in KM systems.

Skok (1999) reviews the knowledge management activities of London Taxi Cab drivers. London Taxi Cab training utilises knowledge management successfully without any form of computer support. This paper shows that technology is not an integral part of, but rather a support to, the phenomenon of KM.

Hoffmann et al. (1999) report on the embedding of knowledge management software within a training firm. They assert that success of such system design relies on the combination of ethnographic surveys, user participation, scenario based design and the combination and linking of design documents and artefacts. The use of such methods helps ensure user acceptance and participation in the system. The resulting software requirements were developed as part of a wider knowledge management system within the company.

Sumner (1999) studied two companies in which knowledge management initiatives had been commenced. Her aim was to understand how theories of knowledge management (i.e. knowledge transformation, knowledge responsibility, and theories of learning and structure) were being applied in practice. From the interviews conducted, she concluded that,

“a combination of strategic objectives, corporate cultural change, leadership, the creation of ‘communities of practice’ and the use of enabling technologies will all be needed to make knowledge management a reality”.

There are also many “work-in-progress” studies in the field of KM underway. One example may be Rademacher’s (1999) research.
Rademacher is undertaking work to validate his proposed model to determine and classify the level of cognition and added value included in knowledge management systems. His model is based upon Bloom’s Taxonomy of Cognitive Objectives and Greenwood’s Six 6 C’s of the knowledge supply chain. From this, Rademacher aims to enhance discussion on the role of cognition relating to knowledge in an organisation.

A variety of research within the area of knowledge management is being undertaken. The above outlines are simply an indication of the breadth of research being reported (knowledge management in city councils, the medical field, taxi cabs and training companies). Although the sources for the above projects are from IT sources (i.e. Information Technology based conferences), the projects also highlight the role of IT as providing support for the phenomena. This is in contrast to seeing the role of IT as the enabling vector; enabling views are refuted by examples such as the London Taxi Cabs from Skok (1999). Additionally, few of the reported projects investigate only the activities and influences on KM; for example, Sumner (1999) reports on the implementation of KM initiatives; Hoffmann et al report on design and implementation of a KM system; Moody and Shanks (1999) report on the use of the Internet and KM; and Schwabe (1999) reports on the implementation of software.

6 Conclusion

Knowledge Management (KM) is a popular topic in IS research. The development of theories that promote resources (rather than the external environment) as the basis for organisational strategy (Grant, 1991) have focused attention on the knowledge resources within organisations.

Knowledge has emerged as the most strategically important resource for an organisation (Grant 1996; Quintas, Lefrere et al. 1997; Wiig
With the growing amount of knowledge available to organisations, organisational knowledge needs to be effectively managed and leveraged so as to deliver its promised benefits of competitive advantage (Kolekofski and Heminger 2003). A full discussion of the resource-based view of organisations is given in section 2.1.

Within technology-focused KM literature, knowledge is generally defined using the distinctions between data, information (discussed in section 3.1) and knowledge (Alavi and Leidner 2001). Different perspectives on knowledge are increasingly proposed in KM literature, such as knowledge being socially constructed. The social construction perspective has been adopted for this research.

The identification and leverage of organisational knowledge requires a wide-ranging strategy, often referred to as Knowledge Management (KM).

KM is a term that is often ambiguous and ill defined. There are many different definitions available in the literature, for example see (Edwards and Mahling 1997; Schultze 1998; Hendriks and Vriens 1999; Rosemann and Chan 2000; Nermati, Steiger et al. 2002).

In this research focus has been on both the use of knowledge and its context. Therefore a combination of the definitions from Hoffmann et al (1999) and Alavi and Leidner (2001) has been derived, and KM is defined as a systematic effort to share and use organisational knowledge within the organisational context so as to increase organisational performance.

The organisational context is an important consideration for KM if an objective perspective of knowledge is rejected and a socially constructed perspective of knowledge adopted. Given the debate on perspectives of knowledge, it is important that the context of KM is understood (Merali 2000). The social context for KM has been investigated in some KM studies (for example see Skok, 1999;
Sumner, 1999; Standing and Benson, 2000; Styhre et al 2001). However, there is little research that investigates the organisational context, IT and KM.

Hence a clear opportunity exists to investigate KM with a socially constructed perspective of knowledge, so as to identify appropriate IT support opportunities.
CHAPTER 3: RESEARCH STRATEGY AND APPROACH

1 Research Questions and Outcomes

In this chapter, the research questions and approach are discussed. The case study site and data gathering approaches are also introduced.

1.1 Research Question

The overarching research question for this thesis is,

What is the relationship between Group Context, Technology and Knowledge Management?

Resources and influences are the focus within the group context. With respect to technology, this research refers to the configuration of technology within the group, as well as their history of technology acquisition and use. KM is defined as a systematic effort to share and use organisational knowledge within the organisational context so as to increase organisational performance (see literature review for further details).

In order to explore the research question, three sub-questions were developed. The research sub-questions are:

1. How are knowledge management, and knowledge perceived within the group?

2. How does the group carry out work, and are there distinct difference in work patterns between groups within the organisation? Especially, how is technology used, perceived and wanted within the groups of the organisation?

3. How can technology be used to support knowledge management efforts within the group, taking into consideration the work patterns and influences on knowledge management?

The first sub-question explores how the group perceives knowledge management concepts.
By looking at technology and the work context of the group, the different ways in which work occurs will be examined.

Sub-question 3, How is KM influenced by the group context, focuses specifically on what is affecting KM; using Holsapple and Joshi’s framework the focus will be on organisational resources and influences.

The three sub-questions will be drawn together and used to answer the overarching research question. This is shown graphically in Figure 1, along with how the research questions relate to the research outcomes:

Figure 1: Research Questions and Outcomes

In Figure 1, the lines between sections (A, B, C) indicate that the sub-questions relate to each other and to the research outcomes. The findings from the sub-questions can be seen as a minor outcome, and when these minor outcomes are combined the major research outcomes emerge.
Table 2 (on the next page) serves several purposes. Firstly, it shows the definition of key terms from the research question. Secondly, it shows the aspects of each key term that will be focused on as part of this research. Thirdly, the table clearly identifies work groups as the primary unit of analysis. Finally, the wording in brackets links the key terms to their definitions, the definitions to the work groups and the work groups to the specific items of interest. So for example, Knowledge Management (KM) is viewed as a collection of knowledge reuse situations. A work group carries out reuse situations. In carrying out knowledge reuse, a work group participates in knowledge activities.

This research has focused on work groups as the primary unit of analysis. A work group is seen as a collection of organisational members that work together towards a goal. A work group may be formally recognised, such as a department or school, or may be informal (and hence undocumented within the organisation).

The work group has been chosen as the focus for analysis since it is rare that only one person, with no communication with other organisational members, solves the majority problems within an organisation. At the same time, by focusing on a work group there is a clear collection of people that can be identified and approached about knowledge activities. There is also more likely to be a related set of problems requiring knowledge activities, which will in turn allow for greater understanding of the knowledge activities executed.

Within the final column, the specific items of interest have been detailed, and the framework or theory being used has also been included where appropriate. The KM influence framework developed by Holsapple and Joshi (2000) has been chosen as the primary framework for this research. A full discussion of selected frameworks can be found in the section Frameworks and Conceptual Models.

Figure 4 shows the different information to be gathered from different levels of the organisation. As shown, there is a KM strategy within which
knowledge reuse situations exist; there are many different knowledge activities that take place in each knowledge reuse situation.

<table>
<thead>
<tr>
<th>Question Term</th>
<th>Definition</th>
<th>Level of Analysis</th>
<th>Items of Interest and guiding frameworks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Management</td>
<td>Knowledge reuse situations (involves)</td>
<td>Work Groups</td>
<td>Group Members and Technology (Holsapple and Joshi 2000) Knowledge reuse situations (Markus 2001)</td>
</tr>
<tr>
<td>Context</td>
<td>Influences on the group (affect the operation of)</td>
<td>Work Groups</td>
<td>Adapted from Holsapple and Joshi 2000. Includes communication structure, organisational history, organisational structure</td>
</tr>
<tr>
<td>Technology</td>
<td>Technology configuration (is used by)</td>
<td>Work Groups</td>
<td>Hardware, Software, or Systems.</td>
</tr>
</tbody>
</table>

Table 2: Questions, Definition, Analysis and Framework

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![Diagram: Levels of KM and Research Questions](image)

Figure 2: Levels of KM and Research Questions
1.2 Research Outcomes

IS research is required to be relevant (to practitioners) and rigorous (with regards to the research community). This leads to two sets of related outcomes: practical outcomes and theoretical outcomes.

The practical outcomes of this research will be a clearer conceptualisation of KM, and a guide to using IT to support KM within organisations. Conceptualisation of KM is a practical outcome since KM is not yet a clear concept, and will make understanding and applying KM within organisations easier.

The major theoretical outcome of this research has been the development of a framework includes multiple elements of KM identified from organisational perceptions. Another significant contribution has been the application of Holsapple and Joshi's (2000, 2001, 2002a, 2002b) KM models in conjunction with Markus' (2001). This research has also demonstrated that exposure to KM needs to be considered as an influence on KM. Additionally, there are currently few studies that consider KM, organisational context and technology so this work is a basis for further studies in the area.

Theoretical outcomes are discussed in depth in Chapter 8, but include:

- Analysis of the perceptions of knowledge management concepts within the case organisation, and of the work the organisation does.
- Exploration of the notion of knowledge, as perceived by case study participants.
- Analysis of the technology and related processes used within the organisation
- An increased understanding of the factors that influence knowledge management within the organisation
- An increased understanding of how to best leverage technology within organisational knowledge management initiatives

2 Research Approach

Cavaye (1996) defines a research approach as “a way of going about one’s research, embodying a particular style and employing different methods”.

The research approach used to explore the research questions of this dissertation was the case study research approach. The approach taken to research was interpretive and hence the case study approach employed was also interpretive.

Firstly, the case study research approach is introduced (section 2.1). Following the justification of the research approach (section 2.2) the issue of generalisation and case studies is addressed. The design of the case study (case study research method) carried out for this research is then discussed in section 3.

2.1 Case Study Research

The case study research approach is considered to be an accepted research strategy within the Information Systems (IS) field (Cavaye 1996) and there are significant publications within the IS field from case studies (Walsham 1995). Cavaye (1996) argues that when people and organisational phenomena are studied (such as in IS field) the capturing of the context of phenomena is always important and “therefore, case research is always an appropriate research strategy in IS” (Cavaye 1996).

Benbasat et al. (1987) propose three reasons why case study research is a viable IS research strategy. Firstly, research can take place in a phenomenon’s natural setting; secondly, research can explore how and why questions and thirdly, case studies allow investigation into areas in which few previous studies have taken place. Case studies allow researchers to “learn about the state of the art, and generate theories about the state of the art”;
to understand the complexity and nature of a phenomenon; and case studies allow researchers to explore the rapidly changing technology in organisations without prior theory development (Benbasat et al. 1987).

However, the case study research strategy lacks a common, accepted definition and is usually described by its characteristics (Cavaye 1996). Such characteristics include investigation of a phenomena where there is no control over variables, the phenomena is investigated in context (its natural setting) and generally involves multiple sources of data (Benbasat et al. 1987; Yin 1994; Cavaye 1996).

Yin (1994) identifies the case study as a comprehensive research strategy incorporating specific approaches to data collection and analysis. Yin defines a case study as an empirical inquiry that

- “Investigates a contemporary phenomenon within its real life context, where boundaries between phenomena and context are unclear,
- Contains many more interesting variables than data points,
- Relies on multiple sources of evidence with data converging to form results,
- Benefits from prior theoretical propositions to guide data collection and analysis” (Yin 1994, p.13).

Cavaye (1996) sees the case study approach as an approach that uses the case study method. Another characteristic of the case study research approach is to look for “in-depth understanding of the context of a phenomenon” (Cavaye 1996).

Benbasat, Goldstein and Mead (1987) defined a case study as examining, “...a phenomenon in its natural setting, employing multiple methods of data collection to gather information from one or a few entities (people, groups or organisations). The boundaries of the phenomenon are not clearly evident at the outset of the research and no experimental control or manipulation is used.”
The above definitions assume that case study research is a defined research method. Stake (2000) disputes this assumption; he states that, “Case study is not a methodology but a choice of what is to be studied.” (Stake 2000, p.435) Yin (1994, p.17) offers a different view, seeing definitions such as Stake’s as too broad, and able to encompass research such as psychological experiments, management survey and economic analysis. In this dissertation, the strength of Stake’s definition is that it forces attention onto the practices within the case, i.e. how research data will be identified and gathered, and then analysed. However, case study is seen as a valid methodological choice for the purposes of this research. The details regarding data identification and analysis are addressed in section 3.3.

Case study research can be conducted with either positivist or interpretive research assumptions (Darke et al. 1998). The case study carried out for this dissertation has been an interpretive case study, where an understanding of the context of KM has been sought to identify ways in which technology can be used to support KM.

The case study research approach may involve a single case or may involve multiple case explorations. Use of a single case allows in-depth exploration of a phenomenon, leading to the rich description of the case. Benbasat, Goldstein and Mead (1987) suggest that single cases should be mostly used for exploration and hypothesis generation. Yin (1994) suggests that there are four reasons to use a single case approach. Firstly, a single case may test a well-developed theory, and as such act as a critical case. Secondly, a single case may be used when multiple cases simply aren’t available (for example, researching rare medical conditions). This type of case is referred to as an extreme or unique case. The third reason to use a single case is if the case can act as a revelatory case, i.e. one in which the opportunity to explore the case has not before been presented. Lastly, Yin suggests that singles cases may also be used as exploratory devices although such cases do not form a complete case on their own.
Stake (2000) identifies three types of case studies; intrinsic, instrumental and collective case studies. Intrinsic case studies are ones in which the researcher is simply interested in knowing more; “the researcher wants better understanding of this particular case” (Stake 2000, p. 437). Instrumental case studies “provide insight into an issue or to redraw a generalization” (Stake 2000, p.437). Both intrinsic and instrumental case studies are single case approaches; the third type of case described by Stake is a collective case study, where an instrumental study is extended to several cases.

Single cases may be used for future case research. Following a single, exploratory case, multiple cases may then be employed to produce more general research results (Benbasat et al. 1987). Similarly, Darke et al. (1998) suggest that a single exploratory case may provide the basis for further cases in different settings. Multiple case studies allow more general conclusions to be drawn because verification of results can be achieved by using data from different cases (Cavaye 1996).

A single case study approach has been used in this research to explore the phenomenon of Knowledge Management (KM). The case used in this research is instrumental, in that the case has been examined to provide insight into the relationship between KM, technology and group context. Since KM is not a well-defined concept and there is little consensus or theory to guide research in the KM literature, a single case study is appropriate since it will allow exploration and theory generation.

However, there are other research approaches (such as ethnography and action research) that might have been used to explore the research question. In the next section, a justification of the choice of case study research is given.

2.2 Case Study Justification

As discussed at the beginning of the previous section, the case study approach is widely accepted and used within the IS research community (Cavaye 1996). Case studies are considered especially appropriate for
studying contemporary phenomena where little understanding or theory is available to guide research (Benbasat et al. 1987; Yin 1994). Darke et al. (1998) argue that the case research approach “is well suited to understanding the interactions between information technology (IT)-related innovations and organizational contexts” (Darke et al. 1998). The support of KM with IT has been an innovative development within the IT field that has suffered from a lack of contextual considerations (how people work) (Schultze 2000).

Case studies are appropriate for IS research as they allow examination of contemporary phenomena in their natural context (Yin 1994), and when research and theory are at early stages of development (Benbasat et al. 1987; Darke et al. 1998). Within IS research, there are many areas where examination of the context is important, and/or theory and understanding is not well developed.

In summary, the case study research approach allows in-depth exploration of a phenomenon within the phenomenon’s natural setting. Case study research may be considered especially appropriate when there is little related theory or prior work on a phenomenon that may be drawn upon (Benbasat et al. 1987; Yin 1994; Cavaye 1996; Darke et al. 1998).

Because case study research often uses qualitative approaches and addresses phenomena that are not well understood, generalisability in the statistical sense is often not possible (Walsham 1995). The next section addresses the limits and appropriateness of generalisability in case study

### 2.3 Case Study Generalisation

Generalisability is a key goal of positivism (Walsham 1993, p. 15), and since positivism has dominated scientific research for a significant period of time, it is easy to understand why interpretive researchers are often asked how generalisations can be made from their studies. Walsham (1993, p. 15) states that in interpretive research,

> “the validity of an extrapolation from an individual case or cases depends not on the representativeness of such cases in a statistical
sense, but on the plausibility and cogency of the logical reasoning used in describing the results from the cases, and in drawing conclusions from them.”

Yin states that the goal of a case study investigator is to expand and generalise theories; “...case studies are generalisable to theoretical propositions and not to populations and universes." (Yin 1994; p. 10).

Walsham (1995) proposes four ways in which case studies can be generalised: development of concepts, generation of theory, drawing of specific implications and contributions of rich insight.

<table>
<thead>
<tr>
<th>Type of Generalisation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development of Concepts</td>
<td>Research leads to the identification of new concepts, such as Zuboff’s “infomate” concept (Zuboff 1988).</td>
</tr>
<tr>
<td>Generation of Theory</td>
<td>Case study research leads to theory that can be used by other researchers</td>
</tr>
<tr>
<td>Drawing of Specific Implications</td>
<td>Specific implications in particular domains of action, for example the relationship between design and development, and business strategy</td>
</tr>
<tr>
<td>Contributions of Rich Insight</td>
<td>Insights from the reading of case studies that are not easily categorised as concepts, theories or specific implications</td>
</tr>
</tbody>
</table>

Table 3: Generalisation of Case Studies

This research has not attempted to provide results that can be widely generalised. “Single or a few cases are poor representation of a population of cases and questionable grounds for advancing grand generalisation” (Stake, 2002, p. 448). Instead, this research has generated theory that will be used to guide future research into KM and technology.

3 Case Study Research Method

A research method is defined by Cavaye (1996) as “a way of to systemise observation, describing ways of collecting evidence and indicating the type of tools and techniques to be used during data collection”. This research has been conducted using the case study research method, which will be further described in this section. The case study research method has been used as part of a case study approach to research (as discussed in section 2).
There are many different research methods that could have been used to investigate the research questions (detailed in section 3.1). Iivari (1991) suggests that there are three groups of research methods: constructive, nomothetic and ideographic. The chosen research method is ideographic (the choice of method is discussed earlier in section 2), although one of the planned outcomes is constructive (framework development).

Within the ideographic research method, Iivari (1991) suggests that the two main research methods within IS research are case studies and action research. The case study research method has been chosen and followed for the research in this thesis. The case study research method is widely used in IS research (Cavaye 1996; Darke et al. 1998). An interpretive approach and assumptions have informed the case study design.

The layout of this section has been taken from Yin’s advice about developing a case study protocol (1994, p. 63-73). Firstly an overview of the project is given including the objective of the research, the issue under investigation and the research site selection. Section 3.2 details the level of analysis for the research and section 3.3 specifies the field procedures (data selection and collection). Section 3.4 deals with data triangulation while in section 3.5 the data analysis techniques are introduced.

### 3.1 Overview of the project

#### 3.1.1 Project Objective

The research question posed is, What is the relationship between knowledge management, group context and technology? The question and its development are discussed in depth in section three of this chapter. The objective of this research was to explore KM within an organisation, and to look for ways to use technology to support KM within the organisation.

#### 3.1.2 The Issue being investigated

The main issue under investigation was KM. KM is a topical issue in IS research as knowledge is now widely accepted as the key organisational
resource that provides competitive advantage (Grant 1997). KM refers to an effort by the organisation to share and use organisational knowledge so as to increase organisational performance.

### 3.1.3 Research Site Selection

A contact with the research site was gained through a senior staff member. During an unrelated meeting, the contact had mentioned that they were interested in knowledge management and how it applied to their department. While the department did not have an explicit KM strategy, the contact felt that there was some KM taking place and was interested in finding out what was happening and how it could be improved.

A meeting was arranged with the contact and the proposed research was discussed. The research proposal is given in appendix A. A meeting was arranged with the departmental head and permission given to conduct the research was gained.

Following permission to conduct the research, the HRM department’s website was examined to identify the structure and policies of the department. Initial interviews were arranged by the contact by actively seeking out people that they considered willing to participate. Five (5) interviews took place as a result of the contact’s arrangements.

After the initial interviews another survey of the HRM department’s web site was conducted to identify other potential interviewees. Attempts were made to identify a sample of employees that considered the different groups and positions within the department, as well as identifying people in unique roles (for example, specialist advisers). In total 19 interviews were conducted.

### 3.2 Level of Analysis

Patton (2002, p. 229-231) suggests that the unit of analysis may be individual, group, programs, community or even nations. For this research the unit of analysis has been at the level of small groups that share a common perspective. The HRM department is divided into a number of
sections, which are further broken into divisions. Within each section, a number of roles were identified; these roles were used to target interview participants.

3.3 Data Collection Techniques

Data was gathered from interviews, organisational documents, and organisational artefacts. Data was collected from the site over a period of 12 months from July 2002 to July 2003.

The main source of research data was interviews with HRM members. The interview sampling and script development are discussed below in section 3.1.1.

3.3.1 Interview Data

The main source of data for this research was gathered during semi-structured interviews. Each interview was planned to be one hour long, and an interview script was prepared which covered issues to do with the HRM department, the individual's work and their use of technology. However, the interview script was used in a flexible manner, with some questions changed or removed based on what was happening in the interview. The development of the interview script is discussed below.

Interviews were anonymous, so as to encourage interviewees to speak freely. Permission was sought from interviewees to record the interviews, although handwritten notes were also taken. Transcripts of all the interviews were made after each interview. Any notes that were made during or after each interview were also transcribed.

3.3.1.1 Interview Sampling

After examination of the HRM departments website it was determined that there were four clear, distinct roles within the department. The role groups were HRM officers, HRM advisers, HRM managers and Others. Roles in the Others group included high level management (i.e. Associate directors) and specialist roles (i.e. health and safety, equity). Most of the Other roles were
found in the Central Services group whereas the Group Services and Systems and Support Services groups were made up of officer, adviser and manager roles.

A stratified purposeful sampling technique (Patton 2002) was employed to identify potential interviewees. Patton describes this technique as examining “samples within samples”; each stratum represents a reasonably homogenous example and allows variations between strata to emerge. Within the HRM department, different role groupings were identified, and from these employees were approached for interviews. Main variation points were the section that each role worked within (Central or Group), and the location that each role worked in.

The stratified purposeful technique was employed to allow examination of each of the role groupings previously identified.

The use of a stratified sampling technique meant that the different “groups” of roles could be examined and compared for common patterns within the HRM department. The maximum variation sampling technique allowed any common patterns within each “group” of roles examined to emerge and in turn contributed to the comparisons made between each stratum.

The exceptions to this technique were the first five interviews which were conducted following a snowballing or chain sampling technique (Patton 1990). After an initial interview with the site contact, the contact provided a list of other members of their sub-group (Central Services) that could provide interesting insights and were willing to be interviewed.

3.3.1.2 Interview Script Development

Interview scripts were developed using Holsapple and Joshi's (2000, 2002, 2004) knowledge management framework, as well as asking questions about knowledge, knowledge management and technology use.

Categories of questions were developed to answer each of the research sub-questions. The categories of questions used, and the relevant sub questions (see Chapter 1 section 1) and analysis chapters were:
• Questions about work; “Can you describe your workgroup? How do you interact with other areas?” Primarily sub-question 2, but also question 3; discussed in Chapter 5.

• Questions about knowledge and knowledge management; “What is meant by knowledge management? What is the purpose of KM to the department?” Sub-question 1; discussed in Chapter 6.

• Questions about influences on the group; “Do you feel that knowledge is valued by the department? Has there been external pressure to adopt KM?” Sub-question 3; discussed in Chapter 7.

• Questions about technology; “What is stored using technology? What information is easiest to find? What would you like technology to provide?” Sub-question 3; discussed in Chapters 5 and 7.

The interview script used is given in Appendix B.

The interview script was used as a guide, rather than followed from beginning to end.

3.3.2 Data Sources

The following table gives the details of the interviews conducted as part of this research. The interviews are presented by strata, i.e. officer, adviser, manager and “other” roles.

<table>
<thead>
<tr>
<th>DATE</th>
<th>ROLE</th>
<th>GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>13/03/2003</td>
<td>Officer</td>
<td>Business</td>
</tr>
<tr>
<td>10/03/2003</td>
<td>Officer</td>
<td>Business</td>
</tr>
<tr>
<td>14/03/2003</td>
<td>Officer</td>
<td>Science</td>
</tr>
<tr>
<td>12/09/2002</td>
<td>Officer (project)</td>
<td>Strategy</td>
</tr>
<tr>
<td>17/12/2002</td>
<td>Adviser</td>
<td>Arts</td>
</tr>
<tr>
<td>1/08/2002</td>
<td>Adviser</td>
<td>Arts</td>
</tr>
<tr>
<td>24/07/2002</td>
<td>Adviser</td>
<td>Arts</td>
</tr>
</tbody>
</table>
Table 4: Interview details

<table>
<thead>
<tr>
<th>Date</th>
<th>Role</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>12/12/2002</td>
<td>Adviser</td>
<td>Science</td>
</tr>
<tr>
<td>11/09/2002</td>
<td>Adviser</td>
<td>Systems</td>
</tr>
<tr>
<td>6/08/2002</td>
<td>Principal Adviser</td>
<td>Other</td>
</tr>
<tr>
<td>4/04/2003</td>
<td>Snr Adviser</td>
<td>Other</td>
</tr>
<tr>
<td>9/08/2002</td>
<td>Snr Adviser</td>
<td>Strategy</td>
</tr>
<tr>
<td>6/08/2002</td>
<td>Snr Adviser</td>
<td>Strategy</td>
</tr>
<tr>
<td>16/12/2002</td>
<td>Manager</td>
<td>Administration</td>
</tr>
<tr>
<td>11/03/2003</td>
<td>Manager</td>
<td>Science</td>
</tr>
<tr>
<td>20/03/2003</td>
<td>Manager</td>
<td>Systems</td>
</tr>
<tr>
<td>22/08/2002</td>
<td>Manager (Projects)</td>
<td>Strategy</td>
</tr>
<tr>
<td>12/08/2002</td>
<td>Associate Director</td>
<td>Strategy</td>
</tr>
<tr>
<td>4/04/2003</td>
<td>Coordinator</td>
<td>Other</td>
</tr>
</tbody>
</table>

**Documentation** examined included the organisational plan for 2002-2004, original training manuals from the HRM department’s information system implementation and information available from the HRM department’s website.

One **observation** of a general department meeting was made during the course of this research.

Examination of the Information Technology (IT) **artefacts** used in the HRM department took place during two interviews. On each occasion, the interviewee voluntarily used IT to demonstrate some of their frustrations. Notes regarding the artefact and how it was used were taken and then transcribed and added to Nud*ist (version 6; [http://www.qsr.com.au](http://www.qsr.com.au)), the tool used in this research.
3.3.3 Triangulation
Triangulation attempts to ensure that consistent findings emerge from research (Sawyer 2001, pg 165; Patton 2002, pg 554-556). Triangulation may be sought by using different methods, data sources or perspectives.

In this study, data triangulation has been attempted by using different data sources and comparing the perspectives of different interview participants on key issues. The details of data sources used in this study are given in section 3.3.2. The different perspectives of interviewees are demonstrated in Chapters 5 to 7, where quotes from interviews have been included to show how an understanding of topic has developed from diverse responses.

Triangulation methods such as using multiple analysts to review findings or theoretical triangulation have not been applied. Use of multiple analysts would not be appropriate for a PhD thesis, and the time constraints of this study have prevented the data from being analysed using multiple theories or theoretical perspectives.

3.4 Data Analysis Techniques
The frameworks outlined in Chapter 4 were the basis for data analysis. Analysis of data was assisted by the qualitative data analysis tool, Nud*ist.

Nud*ist allows qualitative data, such as interview transcripts, to be analysed and coded in a structured manner. All interview data and observations were imported into Nud*ist, were free-node coding was used to explore research topics.

3.5 Evaluation of the Research
The research is evaluated using Klein and Myers (1999) principles for evaluating interpretive field studies in information systems in Chapter 8, Conclusions.

4 Chapter Conclusion
This Chapter has outlined the research question and approach followed for this dissertation. The question this research is attempting to answer is, What
is the relationship between group context, technology and knowledge management? A single-site case study was used to explore the research question in depth, as the field of knowledge management lacks consensus on important topics such as definitions and boundaries.

Data collection was through interviews, although organisational documents and observations were also used when they were available. Analysis was guided using the frameworks outlined in Chapter 4, and a qualitative analysis tool was employed to organise and explore the data. Klein and Myer’s (1999) framework for evaluating interpretive research is applied in Chapter 8, Conclusions, to assess the research and findings.
CHAPTER 4: FRAMEWORKS

1 Introduction

In this chapter the theoretical framework used to explore the research question is introduced. Chapter Two, Literature Review, identified a gap with respect to empirical investigations of knowledge management that adopt a socially constructed view of knowledge to explore organisations in order to support knowledge management with technology. The framework presented in this chapter has been used to explore the research question that has been situated within the literature gap.

This chapter begins with a discussion about the development of the framework used in this research. The chapter describes the knowledge manipulation activities following Holsapple and Joshi (2002a). The concept of knowledge reuse situations is then introduced, within which knowledge manipulation activities take place. Finally, the resources and influences (Holsapple and Joshi 2000, 2001, 2002b) on knowledge reuse situations are discussed. The relationship between the different elements of the framework are shown graphically in figure 1.
2 Development of the Framework

The structure of the theoretical framework comes from Holsapple and Joshi's Knowledge Management Framework, which is described in full in (Holsapple and Joshi 2002b). Holsapple and Joshi also describe the components of the framework in their other works. The knowledge manipulation activities are described in (Holsapple and Joshi 2002a); the knowledge resources are described in (Holsapple and Joshi 2001) and the knowledge management influences are discussed in (Holsapple and Joshi 2000). The original framework is shown graphically below.
Changes to the framework have been made to Holsapple and Joshi’s (2002a) concept of a Knowledge Management Episode (KME). Holsapple and Joshi define a KME to be “what occurs from the time of recognising a knowledge need through to its satisfaction (or abandonment)” (Holsapple and Joshi 2002a). A KME involves a configuration of knowledge manipulation activities that operate on knowledge resources (Holsapple and Joshi 2000).

In this dissertation, the concept of a KME has been refined using Markuses (2001) knowledge reuse situations and Alavi and Leidner's (2001) work on knowledge and knowledge management perspectives. Markuses knowledge reuse situations have been used to define the level of analysis conducted within the case organisation. The use of defined knowledge reuse situations for investigation of knowledge management within the case organisation focus the research at the group level of analysis, and allow exploration of each group's social construction of knowledge and knowledge management.

As knowledge is being explored as socially constructed (as discussed in Chapter 2), this research has explored perceptions of knowledge and KM within the different knowledge reuse situations.
Apart from the changes to the KME section of Holsapple and Joshi’s framework, no other changes have been made to the original framework. However, the framework includes the recognition of a knowledge need that triggers a KME, and a culmination of a KME in learning and projection, or abandonment. The knowledge need and triggers have not been investigated; similarly, the culmination of learning and projection or KME abandonment has not been addressed within the case organisation. Instead, this research has focused on how each knowledge reuse situation uses knowledge resources; how knowledge reuse situations are affected by knowledge influences; how knowledge manipulation activities are carried out within each situation; the perspective of knowledge and knowledge management within each knowledge reuse situation; and at a broader level, how knowledge management uses resources, is affected by influences and the overall perceptions of knowledge and knowledge management.

Sections three to seven of this chapter outline each of the concepts that make up the theoretical framework in greater details. The descriptions start at the lowest level (knowledge and knowledge management perspectives and knowledge manipulation activities, sections three and four respectively) after which the concept of a knowledge reuse situation is introduced (section five). The chapter then continues through to the highest level of the framework (knowledge resources and knowledge management influences, sections six and seven).

3 Knowledge Manipulation Activities

As discussed in the framework development section, central to Holsapple and Joshi’s Knowledge Management Framework is a set of knowledge manipulation activities, which are carried out as part of a Knowledge Management Episode (KME). While the concept of a KME has been replaced with knowledge reuse situations, the knowledge
manipulation activities have been retained and will be investigated within the knowledge reuse situations.

Knowledge manipulation activities use knowledge resources and may be affected by the knowledge management influences (see section six for details about knowledge resources and knowledge management influences).

Within the knowledge management literature there is no agreement upon a generic set of knowledge manipulation activities for knowledge management. Holsapple and Joshi (1999) reviewed ten knowledge management frameworks and found that not all frameworks explicitly identified manipulation activities. Where knowledge manipulation activities were identified, the activities varied in their level of identification. As part of the development of the Knowledge Management Framework, Holsapple and Joshi (2002a) used the Delphi process to validate their model, including their model of knowledge manipulation activities. Because of the lack of any commonly accepted set of activities, in this dissertation the activities proposed by Holsapple and Joshi (2002a) have been adopted.

The set of activities proposed by Holsapple and Joshi (2002a) was developed from a synthesis of concepts, best practices, and issues from published literature. The set of activities were then subjected to examination by knowledge management researchers and practitioners via a Delphi study (Holsapple and Joshi 2002a). The generic set of knowledge manipulation activities proposed by Holsapple and Joshi (2002a) are (at their highest level):

- Acquiring knowledge (from external sources)
- Selecting knowledge (from internal sources)
- Using knowledge (for knowledge generation or externalisation)
- Internalizing knowledge (through storage and/or distribution within the organisation)

Holsapple and Joshi break down the activities of acquisition, selection and internalisation into sub-activities. The manipulation activity of use is broken into another two activities, generation and externalisation. The generation and externalisation activities are then broken down into sub-activities. The description of the activities and subsequent sub-activities are given in the following tables that have been adapted from Holsapple and Joshi (2002a).

### Acquiring Knowledge

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying knowledge</td>
<td>Identify appropriate knowledge from external sources.</td>
</tr>
<tr>
<td>Capturing knowledge</td>
<td>Capture knowledge identified from external sources.</td>
</tr>
<tr>
<td>Organising knowledge</td>
<td>Organise knowledge that has been captured so that it can be used by other knowledge manipulation activities.</td>
</tr>
<tr>
<td>Transferring knowledge</td>
<td>Transfer organised knowledge, for immediate use or internalise for later use</td>
</tr>
</tbody>
</table>

*Table 5: Knowledge Acquisition Activity (adapted from Holsapple and Joshi 2002a)*

### Selecting Knowledge

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying knowledge</td>
<td>Identify appropriate knowledge within the organisation.</td>
</tr>
<tr>
<td>Capturing knowledge</td>
<td>Capture knowledge identified from the organization’s knowledge resources.</td>
</tr>
<tr>
<td>Organising knowledge</td>
<td>Organise knowledge that has been captured so that it can be used by other knowledge manipulation activities.</td>
</tr>
<tr>
<td>Transferring knowledge</td>
<td>Transfer organised knowledge, for immediate use by the activity that requires the selected knowledge</td>
</tr>
</tbody>
</table>

*Table 6: Knowledge Selection Activity (adapted from Holsapple and Joshi 2002a)*
**Internalising Knowledge**

Incorporate or make knowledge part of the organization, by altering the organization's knowledge resources as a result of knowledge acquisition, selection or generation.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessing knowledge</td>
<td>Assess (value) the utility and validity of the knowledge to be internalised.</td>
</tr>
<tr>
<td>Targeting knowledge</td>
<td>Target the knowledge resources that will be affected by the knowledge internalisation.</td>
</tr>
<tr>
<td>Structuring knowledge</td>
<td>Structure knowledge so that it is in an appropriate form.</td>
</tr>
<tr>
<td>Delivering knowledge</td>
<td>Deliver structured knowledge by modifying knowledge resources.</td>
</tr>
</tbody>
</table>

*Table 7: Knowledge Internalisation Activity (adapted from Holsapple and Joshi 2002a)*

**Using Knowledge**

Apply existing knowledge to generate new knowledge and/or produced an externalisation of knowledge.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generating Knowledge</td>
<td>Produce knowledge by processing knowledge that has resulted from selection, acquisition and/or prior knowledge generation.</td>
</tr>
<tr>
<td>Externalising knowledge</td>
<td>Use existing knowledge to produce organisational outputs for release into the external environment.</td>
</tr>
</tbody>
</table>

*Table 8: Knowledge Use Activity (adapted from Holsapple and Joshi 2002a)*

**Generating Knowledge**

Produce knowledge by processing knowledge that has resulted from selection, acquisition and/or prior knowledge generation.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring knowledge</td>
<td>Monitor the organisation’s knowledge resources and the external environment, invoking the selection and/or acquisition activities as needed.</td>
</tr>
<tr>
<td>Evaluating knowledge</td>
<td>Evaluate the selected or acquired knowledge in terms of its utility and validity for the production of knowledge</td>
</tr>
<tr>
<td>Producing knowledge</td>
<td>Produce knowledge from a previously existing base.</td>
</tr>
<tr>
<td>Transferring knowledge</td>
<td>Transfer produced knowledge for externalisation and/or internalisation.</td>
</tr>
</tbody>
</table>

*Table 9: Knowledge Generation Activity (adapted from Holsapple and Joshi 2002a)*
**Externalising Knowledge**

Use existing knowledge to produce organisational outputs for release into the external environment.

<table>
<thead>
<tr>
<th>Targeting knowledge</th>
<th>Target the output in the environment for the knowledge externalisation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producing knowledge</td>
<td>Produce the externalisation output for the target.</td>
</tr>
<tr>
<td>Transferring knowledge</td>
<td>Package and deliver the outputs that have been produced for targets in the environment.</td>
</tr>
</tbody>
</table>

*Table 10: Knowledge Externalisation Activity (adapted from Holsapple and Joshi 2002a)*

Within a knowledge reuse situation, the knowledge manipulation activities can interact in many different fashions. The interaction of the knowledge manipulation activities with each other and the external environment is shown in the diagram below.

*Figure 5: Knowledge Manipulation Activities (adapted from Holsapple and Joshi 2002a)*

When a knowledge need is identified, required knowledge is sourced either internally (selection) or externally (acquisition). If knowledge is sourced internally (selected), then that knowledge may be used in three other manipulation activities. Selected knowledge may be further incorporated into the organization (internalisation); the
knowledge may be used to generate new knowledge and/or make the knowledge available externally from the organization (using); or the knowledge may be used to source knowledge external to the organization (acquisition).

If knowledge externally sourced (acquired), then the knowledge may be used to generate new knowledge and/or make the knowledge available externally from the organization (using) or incorporated into the organization (internalisation).

Once knowledge is incorporated into the organization (internalisation), it is added to the organisational or group knowledge resources. The knowledge resources are used in the manipulation activity of selection.

Once the acquired or selected knowledge is used to generate new knowledge and/or make the knowledge available externally from the organization (using), then the knowledge may be incorporated into the organization (internalisation) or the externalised knowledge may impact the organization’s external environment (external targets).

Like the perspectives of knowledge and knowledge management, knowledge manipulation activities take place within a knowledge reuse situation. The concept of a knowledge reuse situation is introduced in the following section.

4 Knowledge Reuse Situations

Knowledge management activities take place within a knowledge reuse situation. The concept of a knowledge reuse situation has been adopted from Markuses (2001) work on a theory of knowledge

<table>
<thead>
<tr>
<th>Knowledge Reuse Situation (Markus 2001)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Manipulation Activities (Holsapple &amp; Joshi 2002a)</td>
</tr>
</tbody>
</table>
reuse. The knowledge reuse situations have been used to examine the context in which knowledge management is taking place within the HRM department.

Figure 6: Knowledge Reuse Situations

Markuses (2001) work attempts to “specify the conditions under which successful knowledge reuse is likely to occur”. Knowledge reuse is seen as a process, distinct from the process of knowledge creation. Knowledge creation involves activities such as research or new product development; knowledge reuse involves the “sharing of best practices or helping others solve common technical problems” (Markus 2001). In focussing on knowledge reuse, Markus is primarily concerned with the “creation and use of ... the less structured information that is usually stored as documents” (Markus 2001).

Within her theory of knowledge reusability, Markus starts by identifying four types of knowledge reuse situations, and then outlines how knowledge repositories can be useful in the different knowledge reuse situations.

The knowledge reuser and the purpose of knowledge reuse differentiate the four knowledge reuse situations proposed by Markus (2001). The four situations are shared work producers, shared work practitioners, expert-seeking novices and secondary knowledge miners.

**Shared work producers** are knowledge reusers that produce the knowledge that they are to reuse while working on a shared work product (Markus 2001). Shared work producers have the most common shared knowledge of the four reuse situations. Shared work producers may be homogenous work groups (such as doctors) or cross functional teams (such as consulting project teams) (Markus 2001).
Shared work producers have the least number of reuse challenges, as the knowledge they reuse has been created and developed by the producers themselves. Shared work producers generally share implicit assumptions and background knowledge, which enables them to use raw, unrefined knowledge or records that may be incomplete or incoherent (Markus 2001).

However, shared work producers may experience problems finding the knowledge that they have created due to the volume of knowledge produced (Markus 2001). Other reuse problems may occur when records have been decontextualised, such as for use by novice seeking experts (Markus 2001).

**Shared work practitioners** are “people doing similar work in different settings” (Markus 2001). Shared work practitioners may share a community of practice, or may be specialists in the same role but with different locations. Practitioners produce knowledge for other practitioners to use.

Shared work practitioners work within a similar knowledge base and context, but often have difficulty finding knowledge to reuse. For example, when selecting documents produced by others, practitioners may be unsure of the currency or quality of documents and hence rely on colleagues to recommend which documents to use. Authorship of documents may also be used to evaluate the available document selection. Finally, although practitioners have a shared knowledge base and context, because practitioners are working in different settings the specific context of the knowledge development may be required to understand and interpret the knowledge (Markus 2001). In summary, often practitioners have problems finding relevant, high quality work to reuse (Markus 2001).

**Expert-seeking novices** are “people with an occasional need for expert knowledge that they do not possess and do not need to acquire because they need it rarely” (Markus 2001). An example of
Expert seeking novices is a customer accessing another organisation's technical Frequently Asked Questions (FAQ) lists.

Expert-seeking novices often have trouble developing their search questions, as they may not know the jargon of the expert area, or the “right” questions to ask or symptoms to report (Markus 2001). Expert-seeking novices may also have trouble locating and selecting experts and expertise and using “packaged knowledge” (Markus 2001). Novices require information to be presented to them in an accessible manner, and often novices need “decontextualised” information, where only information relevant to their problem is presented (Markus 2001).

**Secondary knowledge miners** are the most extreme case of knowledge reusers defined by Markus. Secondary knowledge miners are data miners, attempting to “extract knowledge from records that were collected by others, possibly unknown to the reuser, for very different purposes” (Markus 2001). Secondary knowledge miners are likely to be working on less structured data that traditional data mining, since they will likely focus on documents (Markus 2001).

The knowledge reuse situations have been adopted so that the context of the organisation can be explored at the group level. The four knowledge reuse situations (shared work producers, shared work practitioners, expert-seeking novices and secondary data miners) provide a boundary within which to explore the perspectives of knowledge and knowledge management. The reuse situations also provide a boundary for the exploration of knowledge manipulation activities.

If the perspectives and knowledge manipulation activities are considered at the lowest level of the framework, then the knowledge resources and knowledge management influences can be considered to be at the higher level of the framework. The concepts of
knowledge resources and knowledge management influences are introduced in the following two sections.

5 Knowledge Resources
Knowledge resources are processed by knowledge manipulation activities (that occur within reuse situations, see section 4) in order to produce value for organizations (Holsapple and Joshi 2001). The relationship between knowledge management resources, knowledge manipulation activities and knowledge reuse situations is shown graphically below.

**Figure 7: Knowledge Resources and Knowledge Reuse Situations**

Knowledge resources are one type of four organizational resources that create value for an organization. Financial, material and human resources are the three conventional organizational resources to which knowledge has been added (Holsapple and Joshi 2002b). The conventional organizational resources are not the focus of knowledge management. As discussed in the literature review, a key premise of knowledge management is that organizational knowledge is a resource that can be leveraged to achieve competitive advantage. Hence the focus of this section (and the focus of Holsapple and Joshi’s framework) is on the knowledge resources available within the organization rather than the financial, material
and human resources. However, before knowledge resources are discussed financial, material and human resources will be briefly introduced to help understand Holsapple and Joshi’s framework.

Each type of resource (financial, material, human or knowledge) can affect one or more of the other resources (Holsapple and Joshi 2002b).

**Financial resources** dictate what can be spent on knowledge management and knowledge manipulation activities. Financial resources also affect management influences on knowledge reuse situations.

**Material resources** are computer-based skills that allow the manipulation of knowledge within the organization.

**Human Resources** are people-based skills that manipulate knowledge within the organization. The impact of managerial skills on KM are also influenced by human resources. (Holsapple and Joshi 2001).

**Knowledge Resources** are the focal resources for knowledge management. Knowledge resources are the raw materials for knowledge activities (Holsapple and Joshi 2001). Hence the available knowledge resources affect the outcomes of knowledge reuse situations and knowledge management overall within an organization. Knowledge resources also form the basis of management influences on knowledge management.

Holsapple and Joshi divide knowledge resources into six categories. The knowledge resources categories are participant’s knowledge, knowledge artifacts, infrastructure, culture, strategy and purpose (Holsapple and Joshi 2002b, 2001). Holsapple and Joshi (2001) recognize that the six types of knowledge resources are distinct although interdependent (for example, a purpose may have several strategies; culture may constrain infrastructure).
Knowledge resources are internal to the organization. However, external knowledge may also be used by the organization in KM actions (see section 4, Knowledge Manipulation Activities for an overview of how knowledge resource and external resources are used).

The table below provides description of each of the knowledge resources as identified by Holsapple and Joshi (2002b, 2001).

Employees, customer, suppliers, partners, consultants, or computer systems may hold the knowledge resource participant’s knowledge. Participants have knowledge processing skills and can process their own repositories of knowledge. Participants may be individuals, groups, a computer with manipulation skills (e.g. a Decision Support System) or a hybrid of computer and humans (e.g. a group working with a Group Decision Support System). “Thus, participants can be human and/or material resources, but the knowledge possessed by each is a knowledge resource” (Holsapple and Joshi 2001).

People arriving in and leaving the organization, individual’s learning and the relationships allowed in terms of the infrastructure, culture, strategy and purpose may affect the availability of participant’s knowledge for use in knowledge manipulation activities.

Knowledge Artifacts are objects that hold or convey usable representations of knowledge (Holsapple and Joshi 2001). Knowledge artifacts are independent of participants and have no knowledge processing capabilities. Following the discussion of knowledge in the literature review, knowledge artifacts are pieces of information that have been developed from knowledge; artifacts may become knowledge when individuals use them.

Examples of knowledge artifacts include documented materials (e.g. manuals, books, reports, contents of filing cabinets) and products...
(for example, knowledge embedded in a manufactured car) (Holsapple and Joshi 2001).

Holsapple and Joshi (2001) also see culture as a knowledge resource. “An organization’s values, principles, norms, unwritten rules, and procedures comprise its cultural knowledge resource” (Holsapple and Joshi 2001). The cultural resource influences each participant’s use of knowledge although culture is independent of individual participants. An organization’s culture provides the beliefs and assumptions that guide participant’s activities.

The knowledge resource infrastructure deals with the formal organisational structure. Infrastructure is made up of roles, relationships and regulations that govern work that is performed by individual participants. Organisational infrastructure defines the rules for organisational operations as well as the rules for “designing, enabling, monitoring, evaluation, enforcing, and modifying of organisational infrastructure itself” (Holsapple and Joshi 2001).

The knowledge resource purpose “defines an organisation’s reason for existence” (Holsapple and Joshi 2001). An organization’s purpose indicates its goals, objectives, mission and vision, and the purpose strongly impacts on other knowledge resources owned or required by the organization. Organisational purpose drives the formation of the knowledge resource strategy.

**Strategy** defines what an organization has to do to achieve its purpose in a effective fashion. Organizational strategy provides plans for using organizational infrastructure, culture, participant's knowledge and knowledge artifacts.

Participant knowledge, knowledge artifacts, infrastructure, culture, purpose and strategy make up the knowledge resource as defined by Holsapple and Joshi (2001). As previously mentioned, the knowledge resources (as opposed to financial, material or human resources) are considered important to organizations as
management literature has been widely proposed that knowledge resources hold the key to sustainable competitive advantage for organizations (see Chapter Two, Literature Review).

In this research, particular focus has been on human participant's knowledge rather than computer-based or hybrid participants. This focus has been adopted so that the research has concentrated on supporting people's work rather than on simply enhancing existing computer systems. The research conducted and reported in this dissertation has explored the context of the case organization so as to identify opportunities for IT support of knowledge management.

Although each of the knowledge resources has been discussed as a distinct resource, in reality all six resources are interrelated (Holsapple and Joshi 2002b). Each of the types of knowledge resource, “constrain, facilitate, and reinforce each other” (Holsapple and Joshi 2002b). Holsapple and Joshi (2002b) acknowledge the relationships between the knowledge resources although the definition of the relationships is outside of the scope of either the 2001 or 2002(b) publications.

In this section organizational resources have been discussed from the viewpoint of resource use by knowledge manipulation activities within knowledge reuse situations. The final aspect of the theoretical framework that has been used in this dissertation are the influences on knowledge management, one of which is resources, including knowledge resources. Resource influences will be discussed in the next section along with environmental and managerial influences.
6 Knowledge Management Influences

Knowledge Management Influences form the last aspect of the framework used within this dissertation. The concept of knowledge management influences has been retained from Holsapple and Joshi’s published work on their knowledge management framework. Knowledge management influences impact on knowledge reuse situations, as shown below in figure 6.

![Knowledge Management Influences and Knowledge Reuse Situations](image)

Discussion of knowledge management influence is found in two of Holsapple and Joshi’s papers (2000 and 2002b). Both sources have been used, but when there is discrepancy between the two sources the 2002(b) source has taken precedence. Holsapple and Joshi identify three groups of influences on knowledge management; management influences, resource influences and environmental influences. The management and resource influences stem from inside the organisation, whereas the environmental influences are external to the organisation. Each of the influences is discussed in greater depth below.

**Resource Influences**

As discussed in the previous section (Knowledge Resources), Holsapple and Joshi identify four organisational resources; financial, material, human and knowledge resources. Resource influences on
knowledge management are internal to an organisation (Holsapple and Joshi 2000). The focus in the previous section was on knowledge resources as these are the focal resources for knowledge management, and knowledge resources are used in knowledge manipulation activities. All four types of organisational resources can affect knowledge management within organizations.

**Financial resources** can influence knowledge management by limiting what can be expended on knowledge activities. Financial resources may also affect the efficiency of knowledge activities or the quality of the results of knowledge activities (Holsapple and Joshi 2000). **Human resources** are the knowledge manipulation skills of human participants. Human resources may also affect the management of knowledge (Holsapple and Joshi 2000). **Material resources** are the knowledge manipulation skills of computer processors (Holsapple and Joshi 2000).

Holsapple and Joshi (2000) divide knowledge resources in six categories. The knowledge resources categories are participant’s knowledge, knowledge artifacts, infrastructure, culture, strategy and purpose. All six types of knowledge resources strongly influence knowledge management within organizations, since the availability of knowledge resources directly affects knowledge manipulation activities. Knowledge resources may also influence knowledge management as they from the basis of managerial influences (Holsapple and Joshi 2000).

**Managerial influences** control the deployment of resources within the organization (Holsapple and Joshi 2002b). Managerial influences “govern the state of an organisation’s knowledge resources and the use of knowledge manipulation skills in performing the [manipulation] activities” (Holsapple and Joshi 2002b). The factors involved in managerial influence on knowledge management are leadership, coordination and measurement.
Leadership in the management of knowledge is seen as the primary factor of the managerial influences, as it establishes conditions conducive to KM (Holsapple and Joshi 2000). Effective leaders of knowledge management should catalysts and coordinators; leaders should exercise control over and evaluate knowledge management (Holsapple and Joshi 2000, 2002b). Effective leadership creates conditions in which participants use and develop their knowledge manipulation skills in order to contribute their own knowledge resources as well as to access other relevant knowledge resources (Holsapple and Joshi 2002b). Knowledge management leadership, “depends on an appreciation of knowledge resources, of knowledge activities, and of the other KM influences” (Holsapple and Joshi 2000).

Coordination requires managing dependencies among activities. Coordination within knowledge management involves managing the dependencies among different knowledge resources; among knowledge manipulation activities; between knowledge resources and other resources; and between knowledge manipulation activities and resources (Holsapple and Joshi 2000, 2002b). Coordination of knowledge management also requires the “marshalling” of skills for executing activities, the arrangement of activities and integrating knowledge processing within the organization (Holsapple and Joshi 2000).

Measurement of the management of knowledge involves valuing knowledge resources, knowledge manipulation skills and activities, and the outcomes of knowledge management (Holsapple and Joshi 2000, 2002b). Measurement should also become a basis for evaluation of other managerial influences (coordination and leadership) and resources.

Whether knowledge resources and activities can be managed is disputed (Holsapple and Joshi 2002b). Either way, Holsapple and
Joshi posit that KM will be influenced by “(1) whether an organisation attempts to measure its knowledge resources and/or performance of its knowledge manipulation activities, (2) how it goes about measuring these and (3) how effective the measures are” (Holsapple and Joshi 2002b).

**Environmental Influences** are external to the organisation. Holsapple and Joshi (2000) identify six factors involved in environmental influence over knowledge management. The factors are markets, competitors, customers, suppliers, and the Government, Economic, Political, Social, and Educational (GEPSE) climate. Environmental influences are external to organisations, unlike managerial and resource influences.

Environmental influences affect the availability of knowledge manipulation skills (human or computer-based) (Holsapple and Joshi 2000). The external environment of an organisation also influences what knowledge resources can or should be acquired for knowledge management. Because environmental influences are external to an organisation’s knowledge management approach, there is little that organisations can do to control environmental influences. Environmental influences can be a constraint to organisational or group knowledge management, but a “confluence” of influences may also be an opportunity for knowledge management (Holsapple and Joshi 2000). Holsapple and Joshi (2002b) recognise that the environmental influences on knowledge management are an area in which further investigation could take place.

The knowledge management influences are the last concept of the theoretical framework to be introduced. The knowledge management influences affect the conduct of knowledge management within an organisation. Each of the influences has been explored to understand knowledge management within the research site. The analysis conducted using the theoretical
framework can be found in Chapter Six. An evaluation of the framework is given in the Conclusions Chapter.

7 Conclusions
The purpose of this chapter has been to introduce the theoretical framework that has been used to gather and analyse data to answer the research question. The framework is based on the Knowledge Management Framework proposed by Holsapple and Joshi (2000, 2001, 2002a, 2002b) with modifications from the work of Markus (2001). The modifications were made so that the organisational context can be explored at the group level of analysis through knowledge reuse situations (Markus 2001).

The theoretical framework has allowed exploration of the research site looking that the social construction of knowledge and knowledge management, so as to identify appropriate IT support opportunities. Chapter Five details the research site in which the framework has been used for data collection and analysis. Chapters Six and Seven demonstrate the application of the framework to the data gathered, and the analysis of the collected data. The frameworks are evaluated in Chapter 8, Conclusions.
CHAPTER 5: THE WORK CONTEXT

1 Introduction to the Chapter

In this chapter, the work context and knowledge reuse, the ways in which the HRM department works are explored. This chapter answers the research question, How does the group carry out work, and are there distinct differences in the work patterns between groups within the organisation? Especially, how is technology used, perceived and wanted within the (groups of the) organisation?

The chapter begins by giving an overview of the HRM department (section 2), before moving into a detailed discussion about how the different divisions in the HRM department interact (section 3). In section 4, the ways in which technology is used by the department are discussed.

Section 5 characterises the work of the HRM department using Markus’ notion of Knowledge Reuse Situations (KRS) (2001). This chapter provides a context in which to understand the perceptions of knowledge and knowledge management discussed in Chapter 6, and the influences on knowledge management discussed in Chapter 7.

2 Overview of the HRM Department

The case study site used for this study was the HRM department of a large university. The department has five sections; this research focused on two sections: the Group Section and the Central Section.

The Group section is the first point of contact for clients needing HRM support and services. The Group section provides service delivery of a wide range of workforce management and HRM services to clients across the University.

The Central section of the HRM department is responsible for Strategy and the direction of HRM as a whole, providing policy development and specialist expertise in employee relations, equity and workplace health and safety and providing business support for the HRM information system, classification services, and advertising all positions available for the University in
newspapers, journals, and websites. The Central section also includes payroll services.

The three remaining divisions of the HRM department provide information resources, information technologies and learning support services; facilities management of the physical assets on all campuses of the university; and extra curricular and community activities. These sections will not be explored further in this dissertation.

The additional sections of the HRM department were excluded from this study, as these sections do not work directly with or on HRM policies. The payroll services function, situated within the Central section was also excluded, as when this research commenced it was not part of the HRM department and was not fully integrated into the HRM department until the end of the research.

The Central and Group sections are also the largest sections in the HRM department, employing 29 (excluding payroll) and 21 people respectively, or a 56% of the total HRM employee base at the time of this study. 19 interviews were performed with employees from the Group and Central sections. Not all staff were interviewed, as some were unwilling to participate or could not be contacted.

**Overview of the Group Section**

The Group section has four divisions that serve a defined set of clients. At the time of this study, the divisions were Arts, Business, Science and Administration. The Arts and Business divisions both have five employees; the Science division has seven employees and the Administration division has two employees.

Most divisions in the Group section have at least a HRM manager and a HRM adviser; some divisions have multiple HRM advisers. The larger divisions also have HRM officers. Within the Central section, a similar HRM Manager/Adviser structure is used by most divisions, although other roles such as senior and principal adviser have been added.
More detail regarding the Group section is provided in section 2.1 of this chapter.

**Overview of the Central Section**

The Central section also has divisions, but their divisions are based on HRM functions. The divisions in the Central section (excluding payroll) are the Executive (two employees), Strategy (ten employees), Health and Safety (three employees), Equity (two employees), Indigenous Australian Employment (one employee) and Systems (eleven employees). For the purposes of this study, the divisions of Health and Safety, Equity and Indigenous Australian Employment have been grouped together as Specialists, since they are small divisions with very specific areas of responsibilities. The Payroll division was not examined in this study. Hence the groups examined and discussed from this point on are the Central Section are Strategy, Specialists and Systems.

The Specialist division within the Central section does not follow the Manager and Adviser structure common with the group divisions. The Indigenous Australian Employment has a single role, Co-ordinator, and the Equity division has a Principal Adviser and a HRM officer. The Health and Safety division does not have a manager, but has a senior adviser instead. The Strategy division has a manager and advisers, but also has two associate directors. Similarly, the Systems division has a manager and advisers, and also has a team leader. The Executive division contains only the HRM director and their personal assistant.

More detail regarding the Central section is provided in section 2.2 of this chapter.

**Interview Details**

Nineteen interviews were conducted with members of the Group and Central sections. The following tables detail the section and division of each interviewee. The table in Appendix C details each interviewee, their section, division and working location.
Table 11: Interviewee Details

<table>
<thead>
<tr>
<th>Section</th>
<th>Divisions</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central</td>
<td>Executive</td>
<td>Not examined</td>
</tr>
<tr>
<td></td>
<td>Strategy</td>
<td>5 interviews</td>
</tr>
<tr>
<td></td>
<td>Health and Safety</td>
<td>1 interview</td>
</tr>
<tr>
<td></td>
<td>Equity</td>
<td>1 interview</td>
</tr>
<tr>
<td></td>
<td>Indigenous Australian Employment Systems</td>
<td>1 interview</td>
</tr>
<tr>
<td></td>
<td>Payroll Services</td>
<td>Not examined</td>
</tr>
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</tr>
<tr>
<td></td>
<td>Business</td>
<td>2 interviews</td>
</tr>
<tr>
<td></td>
<td>Science</td>
<td>4 interviews</td>
</tr>
<tr>
<td></td>
<td>Administration</td>
<td>1 interview</td>
</tr>
</tbody>
</table>

2.1 Group Section

The four divisions within the Group Section (Arts, Business, Science and Administration) carry out similar work. Each of the divisions has HRM Advisers and a Manager working to meet the needs of their clients. The Arts, Business and Science divisions also employ HRM Officers to support their Advisers. There are some important differences between the divisions that cause their work to differ.

The Arts, Business and Science divisions all serve academic clients, whereas the Administration division serves all non-academic staff employed by the university (Manager 3). While some of the policies that apply in the Administration division are slightly different from the other divisions, Manager 2 felt that the same sorts of issues were dealt with when managing the workforce.

The processes and policies followed by the group officers are the same regardless of the division that they work in (Officer 2). However, the Science division has more research Cooperative Research Centres (CRC) and commercialisation units, and many of the clients of the Science division work off campus. Hence the policy application in the Science division could differ.

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1 The CRC Programme was established in 1990 to improve the effectiveness of Australia’s research and development effort. It links researchers with industry to focus R&D efforts on progress towards utilisation and commercialisation. For more information, see https://www.crc.gov.au/Information/default.aspx
from the other divisions, where most of their HRM clients worked on campus (Officer 2).

The Science division also had a presence at the Logan Campus, which none of the other divisions had. Officer 2 had worked at the Logan Campus and felt that there was less interaction between Logan-based Science division officers on different campuses. Officer 2 felt that HRM group officers at the Nathan campus would interact more with officers from other divisions of the Group Section, as they had more opportunity to interact with staff from outside their division. At the Logan campus, Officer 2 had to “figure it out [on their own]”, or rang people within their own division for help. At least at the Logan campus, staff lacked networks between divisions as they did not have the opportunity to interact with the wider HRM department.

2.1.1 HRM Officers

The Arts, Business and Science divisions employ a number of HRM officers. The group officers are the day-to-day contact people for the clients of their division. Key duties of the officers include starting and managing the recruitment process for academic and administrative employees (except for associate professor and professorial level appointments, which are handled by advisers); sending letters of offer to successful candidates; adding new employees to the PeopleSoft system; managing the termination process for any employees that are leaving and ensuring that employees are receiving their correct salary (for example, passing on salary increments to eligible employees).

Officer 4 felt that all the officers would have the same knowledge, although there could be discrepancies stemming from working and dealing with people at particular campuses. For example, Officer 4 would be missing some knowledge about the Science clients and their experiences at the Nathan Campus since Officer 4 worked on the Gold Coast Campus.
2.1.2 HRM Advisers

Advisers are employed by all Group Section divisions, and have the same tasks and activities regardless of the division that they work in (Arts, Science, Business or Administration) (Adviser 1). Group advisers are responsible for supporting the HRM processes of academic recruitment at associate professor and professorial level, promotions, confirmation of appointment, performance management, sabbatical and other leave arrangements, and rehabilitation coordination (Adviser 6).

The work of advisers is informed by HRM policies. However, many of the policies have grey areas (Adviser 1) and how the policy is applied may vary between cases and divisions. Adviser 7 felt that while the position descriptions for all advisers were the same, the work may vary from one division to another due to management preferences. However, Adviser 7 thought that these variations would be minimal.

Adviser 2 thought that there might be inconsistencies between divisions regarding how they carry out business processes but did not believe this affected the HRM department from achieving their business objectives. Adviser 6 found that sometimes, different divisions did things differently although there may be reasons for the different processes (for example, specific needs of the area or management preferences). However Adviser 6 did feel that the different processes created problems, since consistency within the HRM department was important. Once a precedent for a particular outcome was set, other people could ask “well in another area someone got approval to do this, and I don’t understand why I can’t” (Adviser 2).

2.1.3 HRM Managers

The group managers are responsible for working with the Pro-Vice Chancellors, the heads of schools within their client base and the deans of faculties to identify workforce issues, and to put in place strategies to resolve workplace issues (Managers 2 and 3). Manager 3 also felt that it was their responsibility to inform the central section regarding which policies were working or not working, and to identify policy and strategic gaps.
2.2 *Central Section*

The Central section provides the overall strategic direction for the HRM department. The Central section also drives policy development, workplace health and safety, expert HRM advice (i.e. equity and industrial relations) and supports the HRM information system. The Central Section has three divisions; Strategy, Specialists and Systems.

2.3 *The Strategy Division*

Work in the Strategy division is focused around project teams. Team size varies from one person to (around) ten people working on a project or policy (Officer 1). Strategy employees work in a range of different teams, which Adviser 4 felt led to good variety and experience in work, and a good understanding of HRM issues.

Adviser 4 felt that problems had been caused by HRM knowledge such as records and files being lost, and people leaving the department. Adviser 4 felt that the problems had made HRM employees more conscious of ensuring that they are not the only person with a particular piece of knowledge; “So if we get hit by a bus tomorrow someone else will know [about what they are doing]” (Adviser 4).

2.3.1 *The Systems Division*

The Systems division is responsible for supporting the HRM information system, PeopleSoft, as well as maintaining the HRM website and placing job vacancies onto the website and into the media. The Systems division also monitors the HRM server, although the server is under the control of the university’s IT department (Manager 4). The Systems division also sets the priorities on the change requests for the PeopleSoft system, although they are not responsible for carrying out the updates (Adviser 5).

The manager of the Systems division (Manager 4) did not see their division as a technical area; “we are not technical people”. Manager 4 felt that their role was as a link between the HRM business and the Information Technology (IT) areas outside the HRM department.
2.3.2 The Specialist Roles

Adviser 8 and Others 1 and 3 work within the Specialist area of the Central Section. Adviser 8 is the Senior Health and Safety adviser for the HRM department; Other 1 is the Principle Adviser for equity and Other 3 is the Indigenous Employment Coordinator for the HRM department.

2.3.2.1 Health and Safety

As the Senior Policy Adviser for Health and Safety for the university, Adviser 8’s role is situated within the HRM department. However, other health and safety roles and responsibilities are devolved to other areas of the HRM department and their clients. Adviser 8 is responsible for coordination & integration of the university's health & safety management systems and development of university-wide health and safety Strategy, policy & procedures (University 2003a), which involves a number of different activities.

Adviser 8's activities include providing policy advice about health and safety issues, ensuring that the university complies with health and safety legislation, attending campus and element-based health and safety committee meetings and managing worker's compensation claims and rehabilitation.

Adviser 8 had been working within the HRM department for 5 months. Before Adviser 8 was appointed, the role had been filled in a part-time capacity by a number of other people. As such, there was no formal role handover and part of Adviser 8's current work related to “putting the role back together”. One of Adviser 8’s goals was to provide better management information regarding health and safety issues.

2.3.2.2 Equity

Other 1 is the Principal Adviser for Equity, Diversity and Strategic Planning within the HRM department. While Other 1’s role is located within the HRM department, they also work closely on equity issues with the senior management of the university. Other 1’s role is broad, and Other 1 provides advice to “Anyone … if they need advice on equity and policy”. Interestingly, the University is one of only two universities within Australia that have an
Equity Pro-Vice Chancellor (PVC). Other 1 works closely with the other university and their Equity PVC.

Other 1 provides equity advice for policy development. This may involve co-ordinating the development of policies that relate directly to equity issues (for example, equal opportunity) or evaluating policies to make sure that the policies don’t contravene equity principles.

### 2.3.2.3 Indigenous Australian Employment

Other 3 is the Indigenous Australian Employment Co-ordinator for the university. Other 3’s role within the HRM department is to assist Australian Aboriginal and Torres Strait Islander people to obtain equitable employment and career development opportunities at the University (University 2003b). Other 3 sees their role as quite broad, encompassing both legislative aspects and humanistic aspect. Other 3 is responsible for developing strategies to increase the number of indigenous Australians employed by the University.

Other 3 found that getting decisions made in the HRM department could sometimes take three or four months, after which the decision would still be open to appeal. The process for getting decisions made involves meetings at several different levels: “You’ll meet with someone, they’ll take it to their management meeting, at the management meeting they’ll then discuss it, they don’t get all the information, they then come back to me and then it goes back to their management meeting to discuss it with the new information, they then come up with the decision that I get to appeal”.

### 3 Interactions

In this section the interactions within and across the HRM sections are discussed. In section 3.1 the interaction between the Group and Central sections is discussed using interview data. Section 3.2 outlines the HRM department’s interaction with their clients. Section 3.3 outlines how each section interacts internally for advice, and how advice on the HRM information system, PeopleSoft, is sought.

There are three main interaction channels; between
The Group division managers and the Central section regarding strategic HRM policy;

The Group divisions and the Central section for specialist HRM advice; and

The Systems division and the Central section for advice regarding the HRM Information System.

3.1 Interaction between Sections

Interaction between the Group and Central sections occurs in three main ways: between the Group section managers and the Central section, between the group divisions (Arts, Business, Science and Administration) and Central section for specialist advice, and through the work of the Systems division within the Central section and the Group section. Each of these interactions are discussed in detail below.

3.1.1 Strategic Interaction

The majority of interaction between the Group and Central sections occurs at the group manager level. The group managers attend regular HRM management Strategy meetings, where the managers have a chance to “inform and influence policy development” (Manager 2). The group managers work with the Pro-Vice Chancellors, to put in place strategies to resolve workplace issues that are identified via consultation with Heads of Schools and Faculty Deans (Managers 2 and 3).

The Arts, Business and Science division managers meet fortnightly with representative from the Central section to review policies, strategies and identified needs to new initiatives within the HRM department (Manager 3). Manager 3 thought that about 30-40% of their position involved suggesting new initiatives for the Central section. Manager 3 also felt that it was their responsibility to inform the Central section regarding which policies were working or not working, and to identify policy and strategic gaps.
3.1.2 Interaction for Specialist Advice

In contrast to the interaction of the Divisional managers and Central section, the group officers did not regularly interact with the Central section. Interaction with the Central section occurred if policy clarification was needed; for example, “funny queries about policies”, if problems with the HRM information system were encountered (Officer 2), or if the officers had industrial relations issues (Officer 3). Officer 4’s indicated that their interaction with the Strategy division was, “not a lot if we can help it”.

Officer 4 questioned the consistency of the advice given by the Central section, and was worried about the accuracy of the policies that the Central section were working in;

“They might tell you one thing from one person and then something else from another person. And the policies that they are working on are not as up to date as they could be. Things change ... and that takes a while for them [Central] to change them all [the policies]”.

Similar to the group officers who did not interact regularly with the Central section, the Group advisers had limited contact with the Central section. Adviser 7 felt that interaction with the Central section occurred “at their [the central section’s] invitation”. The Central department was contacted if advice was needed regarding policies, industrial relations, Strategy management or systems support (Advisers 2 and 6). Advisers might also be asked to work on projects in the Central section (Adviser 1), or the opinions within divisions might be sourced with regards to new policies or issues pertinent to their division (Adviser 7).

At times, projects managed by the Strategy division also involved employees from other groups within the HRM department or clients of the department. Adviser 2 felt that they interacted more regularly with the Central section, because they had moved to their group adviser role from the Strategy division of the Central section. Adviser 2 maintained personal relationships with people from the Strategy division and still got a lot of help and assistance from them. In other areas such as payroll and systems support, Adviser 2
found that they developed a relationship with a particular person, and directed any inquiries they had straight to that person.

3.1.3 Interactions for Specialist Advice

Several of the employees in the Central section specialised in a certain area of HRM, and were consequently sought out for specialist advice within that area. For example, Adviser 3 provides HRM industrial relations advice. Adviser 5 was a contact person for other HRM employees with respect to systems queries, even if other formal communication channels existed:

“The problem with a lot of the queries that I get is that the people want the information right now, whereas if you go through BSS you have to go through a set of procedures which take forever. It’s just easier to ask me to do it.”

Adviser 8 collaborates with the other health and safety practitioners\(^2\) within the HRM department to manage and coordinate the implementation of health and safety strategies (University 2003c). One of the difficulties that Adviser 8 encountered was informing HRM group advisers with regards to rehabilitation policy implementation. HRM group advisers are responsible for following the health and safety policies and performing the tasks that result in safe and early return to work for injured employees (and hence a reduction in costs). Adviser 8 felt that the HRM group advisers were not carrying these tasks out to the fullest extent, although that this may be due to the previous instability in the senior advisers role. Adviser 8 also interacts with others in the Central section when they need health and safety advice for policy development or review.

3.1.4 Interactions with the Systems Division

The Systems division maintained a number of interactions with other sections of the HRM department. In line with seeing the Systems division as a link between HRM business and the technology systems in the department,

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\(^2\) Practitioners are HRM employees who work on health and safety full time, rather than health and safety officers who also hold other roles in the HRM department or other areas of the university
Manager 4 maintained interaction between both the Group and Central sections of the HRM department. Interaction with the Strategy area was important so that the Systems division knew what changes in policy might be coming up that would affect any of the HRM information systems. Adviser 5 also interacted with the Strategy area employees when they wanted clarification about specific policies; “Sometimes it is easier to ask then it is to find it” (Adviser 5).

The Systems division also maintained strong links to the Business Systems Support (BSS) division in the university (Adviser 5, Manager 4). BSS are responsible for maintaining and updating the PeopleSoft system (all modules, rather than specifically the HRM module). BSS make the changes to the PeopleSoft system in the priority order set by Systems (Adviser 5). The Systems division has functional meetings with BSS every week, and Manager 4 had individual meetings with BSS each week. Adviser 5 contributed to the weekly BSS newsletter with reminders about PeopleSoft processing issues that could not wait until the next tutorial.

3.1.5 Officers and The Information System

The interaction between the Systems division and the Group section is important to keep the officer’s PeopleSoft knowledge up to date. Manager 4 saw Officers to be users of the system doing data entry, whereas Advisers used PeopleSoft mainly for reporting purposes.

A large part of Adviser 5’s role involved interaction with Group section employees. Adviser 5 trained new and experienced users in how to use the PeopleSoft system. Every 6-8 weeks the Systems division runs tutorials which address any problems HRM employees are having with respect to PeopleSoft, as well as refreshing knowledge about the system and filling any knowledge gaps which may be present. The tutorials are also used to warn users about actions that have unintended effects on the system. Adviser 5 estimated that around 75% of the HRM officers and 10% of the HRM Advisers attend the tutorials.
While the focus of the tutorials is on use of the PeopleSoft system, the tutorials cover the entire process that relates to a particular use of the system. Adviser 5 provided an example:

“At the next training the proposed subjects are Prior service. We also talk about not just what is on the system but the whole procedure, so in the case of prior service how they would contact the releasing institution; get the details, what forms they use, what letters they use to go and do that, how they work out how to calculate new accrual that has to be added to the system, all that sort of stuff.”

3.1.6 Advisers and The Information System

Adviser 5 found that there was reluctance among other HRM advisers to attend the tutorial sessions, even if the tutorial session related directly to part of the adviser’s role. Some advisers refused to use the system at all and passed any work requiring the use of the system to other advisers or officers. Many advisers maintained paper systems rather than use the PeopleSoft system (Adviser 5).

In terms of day to day HRM work, the Group and Central section’s interaction is limited to specialist advice such as industrial relations queries. The majority of the interaction between the Group and Central section occurs at a the management level (between group managers and the Central section) or to educate HRM group officers and advisers about the HRM information system (conducted by the Systems division).

Interestingly, group advisers seem to have the least contact with other sections, as they are unlikely to attend the training provided by the Systems division, and do not have regular contact with other divisions in the Central section. As shown in the next section, the group advisers also are limited in their contact with HRM clients. The lack of regular interactions with other sections or clients of the HRM department increases the importance of networks between advisers, as discussed in section 3.3, Interaction for Advice.
3.2 Interaction with Clients

Interaction with the clients of the HRM department is primarily through the HRM group officers. The group officers are the day-to-day contact people for their division’s clients.

The group managers do not interact with their clients unless there are significant issues such as performance or industrial problems (Manager 3). Group Advisers are not generally involved in day-to-day contact with division clients, instead being busy with staff committees (Officer 4).

Members of the Strategy division do not interact regularly with any of the HRM department’s clients. At times, some projects managed by the Strategy division may involve clients. However, at least three members of the Central section have regular interaction with HRM clients; Other 2, Other 1 and Other 3.

As one of two associate directors within the HRM department, Other 2 is involved with high level strategic projects and often interacts with clients of the HRM department.

Other 1 provides equity advice to clients of the HRM department such as deans and heads of schools. According to the structure of the HRM department, equity advice should be sought through Group or Central section managers, but Other 1 found that often this structure was bypassed and Other 1 was contacted directly.

Other 3 has close ties to community groups, used to encourage indigenous Australians to apply for work within the university. Similarly, Other 3 has close ties to clients of the HRM department’s and encourages the clients to consider and employ indigenous Australians.

3.3 Interaction for Advice

The work done in the HRM department’s sections relies heavily on interaction between its employees. Interaction occurs when employees want to know how to do something (or how another division does something) or when specific queries or problems arise. The advice interactions for the Group and
Central sections are discussed in 3.3.1 and 3.3.2 respectively. A major area of interaction is for advice on how to use the HRM information system, PeopleSoft and is discussed in section 3.3.3.

3.3.1 Group Section Interactions

Within the Group Section, the divisions interact to find out how the other divisions do things and how problems have been solved, and how to use the HRM information system (PeopleSoft) (Officer 2). Officer 2 felt that the interaction was good, as “you know a little bit about what is going on in the other areas”. Officer 3 usually spoke to their group adviser and manager about any issues before asking other divisions for advice.

Adviser 6 used advice from other advisers in “odd” situations to avoid re-inventing the wheel. Adviser 6 used the telephone to source such information, and valued the advice gained from experienced members of staff. Adviser 6 also called upon the experiences of people when they needed to understand more about a case than simply the outcome. The case files often detail an outcome, but not the process of how the outcome was reached. To understand the process, Adviser 6 sought explanation from the people involved in the case.

The interaction between the divisions of the Group section has formal and informal aspects. Formal aspects are planned, organised meetings that occur regularly to meet a business need of the organisation. Information meetings are unplanned, ad-hoc gatherings that occur sporadically.

3.3.1.1 Formal Interactions

Formally, the group officers meet every six weeks to ensure that all officers are giving the same advice to their clients, and to ensure that the HRM system is being used consistently. “Fixes” to any problems with the HRM system are also provided in the officers meeting.

Group advisers meet regularly as part of a formal network (Adviser 1, 2, and 7). The network allows the advisers from different divisions to meet and ensure that the work they are doing is consistent and hence equitable for
their clients (Adviser 1). However Adviser 7 mentioned that the adviser’s meetings had “fallen by the wayside” at the time of their interview.

The group managers did not have their own formal meeting, but met regularly with the Central section (see section 3.1). Otherwise, the HRM group managers interacted on an “as needs” basis (Managers 2 and 3). Such interaction was useful to Manager 2 if “I have a particular pressing issue that I need to resolve and I don’t have the expertise in the particular area or if I want to bounce an idea off someone ... the others interact the same way with me”.

3.3.1.2 Informal Interaction

Informal (non-organised) interactions between the Science, Business and Arts divisions occurred primarily using telephone contact. For Officer 2, telephoning was the easiest option; “Also often people want the answers to their problems yesterday, so it’s quicker and easier [to ring people]”. If there was information that could be accessed within the office, Officer 2 simply walked around their office and talked to other officers and advisers. Being able to talk with other people in the office was important to Officer 2, since often the queries were simple “Is this how you do it?” questions. Remembering phone numbers and people not being at their desks were impediments to phoning people for answers to such queries.

Adviser 7 regularly rang other advisers for advice. Adviser 7 sometimes interacted with other advisers so that they could learn about different processes to do things. Advise 7 found that often other advisers had “shortcuts, they have come up with a much better way of doing it” and that such interaction prevented the keeping of processes simply because “that’s the way that it has always been done”.

Unlike the other divisions, the Science division has a presence on the Logan Campus. Officer 2 had worked on the Logan Campus before moving to a division role at the Nathan Campus, and found that there was less interaction between Logan Science officers, and officers from other divisions and
campuses. At Logan, Officer 2 had to “figure it out”, or rang people within their own division when they encountered problems or issues.

The group managers are responsible for passing down HRM information to the advisers and officers in their division (Manager 3). A key source of information for officers is the adviser that they work most closely with.

Manager 3 also valued the informal relationships that they had with their advisers, and noted that the loss of experienced advisers was an issue for their division. The HRM department had a low turnover rate for staff and hence informal links between people were well established.

“I’d lost three of my really experienced advisers who were like my 2IC’s (second in commands). I’ve actively put in place a range of things not to have it happen again ... I’ve put in place a position, [that is filled by a] very experienced adviser, to build up the knowledge, formal and informal, of the other advisers and officers in the group. I know that in 2 or 3 years she’ll probably retire and I will want to capture that somehow, and build up the others in that capacity”.

The position that was established by Manager 3 was not typical, and was only allowed because of the growth of the Science division. At the time of this research, the university was introducing a medical and oral health program at both of which would become clients of the Science division.

3.3.2 Central Section Interactions

The Central section divisions do not have regular, formal adviser or officer meetings like the Group section. Some regular meetings occur; for example, Adviser 4 has regular meetings with their direct manager. Adviser 4 feels the regular meetings are a reflection of the active interest their manager takes in what Adviser 4 is doing. However, many of the employees in the Central section rely on informal networks for advice.

Other 2 has developed an informal network for people at Other 2’s level within the administration of the university. The network had met twice at the time of Other 2’s interview. The meetings are generally used to listen to a speaker on a particular topic of interest.
Adviser 4 used lots of information networks of people from different areas within the HRM department to keep updated about what other people are doing. Adviser 4 felt that most people in the HRM department would have similar informal networks.

Other 2 also uses their own networks within the HRM department to source necessary information, rather than using internet-based resources or HRM databases.

Officer 1 primarily asks other people within the HRM department for advice on where to look for information. Manager 1 felt that personal networks were used widely to disseminate information within the HRM department, and Manager 1 often sought advice from other people on where to find information within the department.

Other 3 sought out the help of others in the HRM department when they could not find what they were looking for electronically; “Can you tell me this or can you tell me that, I can’t think of this I can’t find that?”. In asking other HRM employees for information, Other 3 was looking for clues to help re-establish a line of information on a particular issue. The most useful people to get clues from were those that had been working in the HRM department for some time and had a broad perspective of HRM knowledge. Other 3 also found it useful to talk to the author of documents on the server so as to understand why and how some documents were produced.

Interaction for Specialist Advice

Due to the specialised nature of their role, the interaction of some employees was sporadic and varied according to the needs of the department.

For example, Other 3 may supply input into new policies or advise HRM Advisers on how to attract indigenous applicants for positions. Other 3 often participates in informal meetings with other HRM employees to discuss any queries relating to current work issues. Other 3 thought that the most productive informal meetings occurred outside of the HRM office where the meeting could remain focused.
Other 1 interacted with whoever needed their advice. Other 1 also took part in informal, fortnightly management meetings with HRM management where any information of interest was shared. At any time, Other 1 would also be working on a number of equity “task forces”, which are set up to try and progress high priority issues within the university. The task forces are similar to the project teams that exist within the HRM department that Other 1 also participates in (when there is need for equity input). Other 1 also provides equity reports to the university management as they are requested.

Adviser 3 felt that their role was more specialised than most others in the HRM department. Adviser 3 works in the area of industrial relations, which is heavily constrained by government legislation, and felt that they role dealt with a narrower range of HRM topics and issues. Because of the specialised nature of industrial relations matters, Adviser 3 asks their supervisor for advice when necessary. However, Adviser 3 does seek ideas and advice from others in the HRM department when it is appropriate. Other HRM employees seek industrial relations advice from Adviser 3.

**Reliance on Informal Networks**

Informal networks are an important part of the Central section, and were identified as one of the most important skills for employees.

Manager 4 felt that the most important skill that they had was knowing the people in the organisation, so that they could tell you where (and how) to find things on the system. Because of the lack of documentation within the HRM department, contacts were important so that they could be asked, “how was it supposed to work, what was the intention?” (Manager 4).

Officer 1 found that because the HRM department had a low staff turnover, people tended to rely on others remembering situations rather than documenting the situation and its outcomes. Other 2 also noticed that there was patchy documentation regarding some situations, although they felt this was improving. Officer 1 was a contract worker within the HRM department, and felt that as someone who knows that they will be leaving the organisation
was more aware about leaving a document trail. Officer 1 found the document trail easiest to develop when a situation was current and fresh.

Manager 4 felt that there were many instances where the same question was asked many times and there was no documentation that could provide an answer. In situations where there was no documentation, information was sourced from people who knew what had happened previously.

Adviser 5 had also found problems were occurring because of a lack of documentation. For example, when an external consultant was engaged to examine part of the HRM Information System, PeopleSoft, the consultants asked why the system was set up in certain ways. The people that had been involved in that process had left the HRM department, and no-one could say why processes were set up as they were. Adviser 5 was involved in the PeopleSoft implementation and conceded, “In hindsight we needed to document why choices were made and why things were configured in a certain way”.

The on-going documentation problems and reliance on personal networks is problematic for the HRM department. Because of the low staff turnover, some important decisions are not fully documented, and this is not realised until people leave or move within the divisions of the HRM department. In addition, by not documenting information employees were also increasing their value to the department, and the disruption that would be caused when they leave.

Some interviewees also indicated that the fear of information discovery under Freedom of Information legislation prevented them from documenting any more than basic details about a case or situation. These pressures have combined to make informal networks a highly valued and important source of information within the department.

3.3.3 PeopleSoft Advice

Advice regarding the HRM information system, PeopleSoft, was distributed in a number of ways. The group officer meeting includes advice on how to use
the system, as discussed in section 3.1. Also discussed in section 3.1 were the tutorials run by the Systems division.

Informally, the group officers seek advice from other officers before contacting the Systems division. Officer 3 took queries about the HRM information system (PeopleSoft) to other officers rather than to the Systems division in the Central section. Similarly, Officer 4 asked other officers at the Gold Coast for advice regarding PeopleSoft before contacting the System and Support division in the Central section. “Maybe ask the other officers first and if they don’t know go to the [systems people]. The officers did not seek advice regarding PeopleSoft from the advisers because “they don’t use it at all” (Officer 4).

While the group manager’s use of the PeopleSoft system was limited, Manager 4 felt that PeopleSoft advice (the HRM information system) was best sought from other people;

“I did training on PeopleSoft but I never had to do any processing. So you quickly lose the knowledge of how PeopleSoft works ... I rely heavily on other people to explain what on earth is going on”.

When advice was sought from the Systems division, often Adviser 5 was contacted directly rather than following formal processes:

“The problem with a lot of the queries that I get is that the people want the information right now, whereas if you go through BSS [the central IT department of the university] you have to go through a set of procedures which take forever. It’s just easier to ask me to do it.”

Relationships play an important role in the HRM department. The use of informal networks for advice is a self-sustaining situation that will require concerted effort to change. The reliance on networks was further enhanced with the introduction of the new HRM information system, PeopleSoft. The PeopleSoft introduction could be seen as a situation where employees, given the chance to use technology to improve information sharing, have rejected the tool and enhanced the strength of inter-personal relationships instead.

The interactions of HRM employees is further analysed in section 5, Knowledge Reuse Situations.
4 Technology Use

The focus in the interviews was on two different technologies, the HRM file server and the HRM Information System. In the following section the file server and the information system are discussed. Both the server and the system are perceived in a negative way, although some positive aspects are identified.

4.1 The HRM File server

The HRM file server stores approximately 95% of the department’s work, including HRM reports, issues papers and correspondence (Other 3). Information that wasn’t stored on the server was stored in private drives or a separate, secure location due to its confidential nature. Some employees indicated that they stored draft work on their own network drive rather than the server, although finished work was transferred to the server (Adviser 8).

Other information that wasn’t stored on the server included “stuff that is in my head, or the stuff that I know is immediately accessible, it’s in a folder or something” (Other 1). Other 1 also identified that sometimes they didn’t store information simply because, “I am sick of working with words!”.

Perceptions of the file server varied between HRM employees. Many perceived the server to have a number of limitations and structural problems. However, a few employees saw the server more favourably, and identified opportunities to improve its use.

4.1.1 Limitation of the Server

Many employees perceived the structure of the server as problematic. Inconsistent organisation, file naming and currency issues were identified as limiting the usefulness of the server. Common descriptions of the server included frustrating (Adviser 7, Manager 4), irrational (Other 2) and inconsistent (Advisers 1, 4 and 7).

None of the interviewees referred to a protocol for naming or storing files on the server. Other 2 described the server as “a folder where everything is just thrown in”, and felt that deciding where to store files on the server happened
“by fluke, quite seriously”. Likewise, Other 2 found that the files on the server often poorly named, “We’ve got thinks like John’s agenda, notes 23rd August. Who’s John? Why was the date important?”. Manager 4 knew of no protocol for setting up folders; when a new folder was needed, one was simply created. Similarly, Other 1 found it difficult to categorise information to be stored within existing folders, and often created new folders within their own section of the server instead.

As a consequence, Other 1’s section of the server contained many nested folders; “It’s endless, like Russian dolls”. Manager 4 admitted that they kept everything in a folder under “Manager 4” and then into separate folders, which was not the way the server was supposed to work.

Adviser 4 and Other 2 found that many different versions of documents were saved on the server, often in different locations. This made determining the most current information difficult, and led to a reliance on knowing the files author to determine the currency of the file (Adviser 8, Manager 1). In addition, the different divisions use the server in different ways, adding to the inconsistent structure of the server (Advisers 1, 2 and 3).

Use of the server was seen as a skill that could take a long time to learn. Adviser 8 and Officer 1 both experience difficulties in learning to use the server when they joined the HRM department. Manager 2 thought that new employees would have difficulties using and finding information on the server because it was not user-friendly. Adviser 2 stated, “I’ve been here for 2 and a half years now, and I have finally come to grips with the file server”. Difficulties using the server also occurred if employees moved between divisions, because of the different ways they used the server.

4.1.2 Improvement Opportunities and Attempts

Some interviewees felt that limitations of the server should be addressed because the server held important organisational information. Other 3 thought that the server provided information that could stop re-invention of the wheel and provide insight into how to negotiate what is currently happening within the HRM department.
Suggestions for improving use of the server included better organisation (Adviser 1, Other 3), correctly labelling files so that anyone looking for information could easily see what each file related to (Other 3) and ensuring that naming or structural protocols are communicated to all HRM employees (Officer 1).

Other 2 and Adviser 7 remembered that failed attempts had been made to apply a protocol to the storage of information on the server. Adviser 7 knew that an effort had been made to set up rules about storing files on the server, but no consensus was reached and the effort was not pursued further. Other 2 remembered that there were difficulties in establishing an appropriate protocol for the HRM server.

4.1.3 Positive Perceptions

Some of the HRM employees found the file server to be well organised and easy to use. For example, most of the HRM officers were happy with the server, finding it easy to use and navigate (Officers 2 and 3). Officer 4 was happy with the server and it’s structure. Officer 4 thought that officers may find the server easier to use than advisers since the officers did more intricate things with the server.

Adviser 5 found the HRM server to be well organised. For example, Adviser 5 felt that most of the training manuals and job aids were available on the server. A review of the server had just occurred and some archiving had been done, increasing the user friendliness of the server. Similarly, Adviser 3 felt that everything was available if they searched enough.

Adviser 6 felt that everyone in their division was using the server consistently, and as such, it was easy to use. Similarly, Adviser 3 found that the server goes through phases, where it is sometimes consistently used (and hence perceived as ‘good’), and other times less organised. At the time of their interview, Adviser 3 thought that the server was consistently used and hence user friendly.
Manager 3 thought that the files on the server had some structure and was easier to use that the HRM information system, which is discussed in the next section.

**Conclusion**

The HRM file server is widely used by the officers, advisers, managers and others, but is perceived by many to have a number of limitations. Interestingly, the officers seem to have the most positive perceptions of the server, which they attribute to using the server more often than advisers or managers.

The location, naming and currently of files on the server is often inconsistent and limits the use of the server. While many employees recognised these limitations, several others also realised that introducing protocols would improve the user friendliness of the server. However, failed attempts to improve the server indicate that changing the use of the server may be difficult and face resistance.

**4.2 The Information System**

The HRM information system is a PeopleSoft system that is used to store staff records and handle payroll activities. Use of the PeopleSoft system faces a number of issues. Firstly, HRM officers primarily use the system for data entry, and the use of reporting features by advisers is limited. Managers often do not use the reporting features at all. This situation is unlikely to change, as advisers are reluctant to attend training sessions for the system, and there is no training provided specifically for managers.

However, some positive aspects of the system were observed – for example, better information management and reporting potential were noticed by some employees. These issues are discussed further below.
4.2.1 Use of the System

“PeopleSoft is used mainly by the officers” (Adviser 2).

HRM officers are the primary users of the PeopleSoft system. Officer 4 estimated that 30% of an officer’s work was administrative and required the use of PeopleSoft. Officer 3 mainly used PeopleSoft to ensure their client’s pay is correct. However, because PeopleSoft wasn’t used all the time, Officer 3 often forgot how to use parts of the system and had to ask other officers for help.

Adviser 6 felt that while officers could use PeopleSoft and weren’t unhappy with it, a new employee would have trouble learning to use the system. Adviser 6 felt that using PeopleSoft was always complicated, and found that their use of the PeopleSoft was less than they had expected, and perhaps even less than their use of the previous HRM information system.

When officers were asked about the use of the PeopleSoft system, they acknowledged that they were the primary users, and that the advisers and managers were less likely to use the system.

Officer 2 said the officers were the main users of PeopleSoft; advisers use PeopleSoft to enter staff reviews and managers do not use PeopleSoft at all. Officer 2 found that advisers asked officers to get information from the PeopleSoft system, because the advisers had forgotten their training and could not use the system. Officer 4 recognised that because the advisers rarely needed to access PeopleSoft, they found it very difficult to use.

Similarly, advisers and managers recognised their limited use of the system. Advisers 1 and 6 acknowledged that the HRM officers are responsible for data entry into the system. Adviser 2 stated that, “PeopleSoft is mainly used by the officers”.

Adviser 8 did not use the HRM information system, PeopleSoft; “I probably should use PeopleSoft but I avoid it because it gives me the heebie jeebies”. If Adviser 8 needed access to information in the PeopleSoft system, they asked other officers and advisers to gather the information for them.
The Managers did not use the HRM Information System. When asked who used PeopleSoft, Manager 3 replied that the officers mainly used it. Manager 2 used PeopleSoft the least of any technology-based system available in the HRM department. Manager 2 felt that the information held by PeopleSoft was static, although this was not the intended purpose of PeopleSoft. Manager 2 would like to see case management notes attached to employee files so that HRM precedents could be traced effectively using PeopleSoft.

4.2.1.1 System Training

Through the Systems Support division, the HRM department offers on-going training for officers and advisers using PeopleSoft. Adviser 5 estimated that around 75% of the HRM officers and 10% of the HRM Advisers attend the tutorials.

Adviser 5 found that there was reluctance among other HRM advisers to attend the tutorial sessions, even if the tutorial session related directly to part of the adviser’s role. Some advisers refused to use the system at all and passed any work requiring the use of the system to other advisers or officers. Many advisers maintained paper systems rather than use the PeopleSoft system (Adviser 5).

In addition, opportunities for self learning were limited. Although the original training manuals for PeopleSoft were very comprehensive, such manuals are now out of date and are too comprehensive to be maintained (Manager 4).

The manuals were originally developed in conjunction with the PeopleSoft implementation partner, and the department does not have the resources to keep the manuals current.

4.2.2 Benefits of the System

Several HRM employees felt that the PeopleSoft system had improved information management within the department. Adviser 7 found that information such as client’s addresses was more current since PeopleSoft was introduced than it had been in previous systems.
Other 3 thought that PeopleSoft was a more general system than the old system; only people trained in the old system could use it, whereas all employees could potentially access and use the current system.

Adviser 4 felt that the introduction of the PeopleSoft system had led to better information management in the HRM department. Before the PeopleSoft system was introduced information regarding government-required statistics was kept in a database, and the required statistics needed to be gathered or verified manually.

The introduction of the PeopleSoft system has allowed the HRM department to collect required statistical information about staff as they are introduced to the organisation, rather than in a retrospective manner such as happened before the PeopleSoft system was introduced. While the collating and analysis of statistical information still has to occur, the PeopleSoft system has made the information more readily available to those who need it.

4.2.3 Limitations of the System

Several employees felt that the PeopleSoft system was not being used to its full potential.

Officer 1 and Manager 1 both felt that the system could be used better. Officer 1 (who had previously worked in a commercial organisation with PeopleSoft) felt that the HRM department was not using PeopleSoft to its full capacity. Manager 1 felt that the PeopleSoft system was not integrated as seamlessly as it could be within the HRM department.

Officer 1 felt that not all users of the HRM department's PeopleSoft system understood how the system worked, and hence didn’t understand why or how some information needed to be entered into the system. As a consequence the usefulness of some reports from the PeopleSoft system was limited.

Other 2 also found the reporting aspect of PeopleSoft was limited. Other 2 thought that the department was in a very rudimentary stage of development with its reporting from PeopleSoft, and that the reports from the system were often not used. Other 2 attributed the lack of sophisticated reporting to the
HRM department not being used to working with data; “I know where it is in theory, but not how to use it”.

4.3 Technology Wish Lists

In section 4, Technology, the current use of technology by the sections within the HRM department as discussed. Interview participants focused on the HRM server and information system, PeopleSoft, when asked about technology. Overall, perceptions of the server and the information system were negative. Concerns about consistency and duplication on the server and general dislike for the PeopleSoft information system were the major technology issues identified from interviews.

The last question posed to interview participants was, What technology would you like to be provided as part of the KM Strategy? Participants were encouraged to provide creative answers, and to explore technological possibilities not just what currently exists. The question attempted to elicit a “wish list” of technology for knowledge management.

Interviewees gave a range of technology wishes, ranging from properties of technology such as user friendliness to specific replacements for existing technology in the HRM department. The wishes are discussed below.

4.3.1 Simplicity and Ease of Use

Manager 2 didn’t want any specific functionality from technology, but felt that user-friendliness and simplicity of any technology was important. Adviser 6 felt that the HRM information system PeopleSoft was not user friendly. Adviser 6 felt that they were working for the system, rather than the system working for them. A simpler, easier and user-friendly system was the wish of Adviser 6. Similarly, Officer 2 didn’t like working with computers, and wanted anything that would make it easier to work with computers.

Adviser 1 wished that technology could provide a magic way of ensuring consistency so that all of the HRM department’s clients received the same advice.
Adviser 3 wanted a sensible, meaningful way to tap into the information of the HRM department. Adviser 4 wished for fast and easy access to information. Other 3 wanted better processes to access information; for example, to be able to have access to the HRM server wherever and whenever they liked, in a small, convenient manner. Other 3 thought that laptops were cumbersome and didn’t like the reliance on a mobile phone for internet access via a laptop.

4.3.2 Not Just Technology

Manager 4 felt that there was an overemphasis on technology at the expense of business processes. Manager 4 felt that the HRM department’s current technology could be used, but that the department was, “not very good at putting this together in a structure which is easy to use”.

Similarly, Other 2 felt that the “how” was more important than “what” technology could provide. Other 2 wanted easy protocols for storing, retrieving and receiving information, as well as protocols about what should be stored in each file. Along with storing an outcome, Other 2 wanted to store the process that led to the outcome, since the university bureaucracy and structure influenced how outcomes were reached.

Adviser 8 wanted access to an IT person to develop systems and software for their specific goals.

4.3.3 Better Organisation

Adviser 4 and Officer 3 wanted more consistency in the naming of files on the server. Adviser 4 also wanted better scanning facilities to help with finding documents. Adviser 2 wanted more consistent cataloguing and versioning of information on the server, and thought that this could be achieved with a Lotus/Domino document system. Officer 4 wanted to streamline the HRM information system and policy library (Domino system) so that both systems could be easier to use.
4.3.3.1 Searching Facilities

Manager 1 and Other 1 both wanted an intuitive search facility. Manager 1 found that “find” and explore functions were cumbersome, and imagined something like “Ask Jeeves” facility that would apply to file servers. Other 1 also used “Ask Jeeves” as an analogy, and wanted a user-friendly system that would allow quick access to information. Similarly, Manager 4 wanted a search facility for the server, based on the Google search engine.

Adviser 7 wanted technology to

“Sort all the documents and the emails, put it in the right box so that I can find it again... I'd like a system that says well that's in that box, so that when I come into, say it's misconduct or something, I could go to that box ...it's all there ... at the moment I've got this huge email archive.”

4.3.4 More than the Facts

Manager 3 wanted technology to provide an interactive system. Manager 3 thought that by adding interaction, information and data could move towards being three dimensional (if information and data were two dimensional), which would at least make things more interesting. Manager 3 gave the example below:

“I think an interactive system would be really good. Like the policy library for instance; you could hop onto a policy and that could give you a little bit of a chat about why the policy is there, why it's important, the history etc. I think that would be really good. Things like even council minutes and things, it would be really good if staff could get a bit of a feel for them. “

Officer 1 imagined a “magical” database that could access all the information in the HRM department, and that could push them in the right direction for information.

Adviser 5 and Other 3 wanted technology that would allow them to “copy people's brains” before they left the department. Adviser 5 had experienced difficulty in understanding why the PeopleSoft system had been configured in certain ways because the person involved in the configuration decision had left the department, and no documentation had been left.
5 From (mere) Technology Use to Knowledge Reuse

Sections two to four have described the HRM department’s work context, focusing specifically on the ways in which HRM employees interact. The primary mode of interaction is based around personal networks, even when the information that is being sought is available from case files or the HRM information system, PeopleSoft. Often, people maintained relationships with contacts and would by-pass formal communication mechanisms for information. Group section employees did not like interacting with the Central section, and preferred to seek information within their own work divisions or other Group divisions.

The majority of HRM employees did not view the HRM file server and PeopleSoft system favourably. The file server was seen as poorly structured, hard to use and of limited use due to problems determining the currency of stored information. The PeopleSoft system was used mainly by the officers for data entry and retrieval, and was only used in a limited manner for reporting or management task.

Most employees acknowledged that the file server and information system be useful, but that at the moment the technology was not well deployed within the department. These feelings were expressed in the technology wish-lists such as improving the ease of use of technology, or meaningful ways to tap into group knowledge. Several employees also wanted more than just the data; they wanted better business processes that technology could be used to support.

Overall, the findings show that technology is not efficiently used to support the work of the HRM department. The work of the HRM department relies heavily on personal relationships and the technology within the department is not provided in a way that matches employees wishes. In the next section, the differences in work practices of the HRM department are explored further using the notion of knowledge reuse situations (Markus 2001).
5.1 Knowledge Reuse Situations
Sections 2 to 4 of this chapter have given a broad overview of the HRM department used as the case study site for this research. The two main sections of the HRM department, Central and Groups, carry out different types of work and interact in a limited manner.

Markus (2001) characterises knowledge processes as involving either knowledge creation or knowledge reuse. Knowledge creation processes involve activities such as new product development or research. Knowledge reuse processes include activities such as sharing best practice or advice (Markus 2001). Most of the work carried out by the Central and Group sections can be characterised as knowledge reuse where knowledge is captured or documented, packaged, distributed or disseminated and reused (Markus 2001). Markus identifies four situations of knowledge reuse – shared work producers, shared work practitioners, expert-seeking novices and secondary data miners. A summary of each knowledge reuse situation is given in table 12 that has been adapted from Markus (2001).

For each knowledge reuse situation, Markus (2001) identifies challenges facing the knowledge reusers, and strategies that knowledge reusers employ to overcome challenges. The challenges and strategies are grouped into four stages: defining the search question, locating knowledge, expertise or experts, selecting expertise or experts and applying knowledge.

In the following sections, the four knowledge reuse situations are used to discuss the work done in the HRM department. The challenges and strategies used to overcome challenges in each situation are discussed using data from the HRM department.
5.2 Shared Work Producers

Shared Work PROducers (SWPro) work in teams and produce knowledge while working on a shared product (Markus 2001). The knowledge that SWPro create is reused by the people who were involved in the creation of the knowledge. The work of some of the Central section employees can be primarily characterised as that of SWPro. The Strategy division within the Central section (Adviser 3 and 4, Manager 1, Officer 1 and Other 2) and the Systems division (Adviser 5 and Manager 4) are SWPro.
The focus of the Strategy division is to contribute to the direction of the university, and to enhance the systems that allow the university's strategic direction to be achieved (Manager 1). Work in the Strategy division of the Central section is typical of SWPro.

The Strategy division works in teams that are primarily made up of people from the Central section, although experts from other areas may be included. Team work focuses on policy developed, organisational development or employee relations activities, all areas that the on-going focus of the Central Section and that are passed onto the other sections.

The systems division focuses on supporting the HRM information system, website and job advertisements. The systems division holds specialist, in-depth knowledge about the systems used to support the work of the HRM department. The systems area is a link between the HRM business processes and the technical services provided by the university (Manager 4).

The systems division of the HRM department also provides training for new and existing users of PeopleSoft, the HRM information system; investigates problems occurring in the PeopleSoft system; sets update priorities for the PeopleSoft system and develops “work around’s” for the HRM employees when problems occur with the PeopleSoft system (Adviser 5, Manager 4). Often the specialist knowledge held by the Systems division is distributed to division officers and advisors in the form of job aides, a step-by-step description of how to execute a process (Adviser 5).

The information developed may later be provided to groups of Shared Work Practitioners (SWPra), as discussed in section 5.3 of this chapter.

### 5.2.1 Challenges and Issues for Shared Work Producers

#### 5.2.1.1 Poor Documentation

SWPro often keep good records of their work, but fail to document rationales for decisions with the outcomes. Staff turnover may compound this issue, as decision rationale leave with the staff (Markus 2001).
Many of the SWPro in the Central section had experienced problems with finding information about an issue or the completeness of some HRM documents. Officer 1 and Other 2 felt that documentation in the HRM department was patchy, with people relying on others to remember the situation and the outcomes. Contacts with other HRM employees are important so that questions such as, how was it supposed to work and what was the intention? could be asked (Manager 4).

Often, Adviser 5 found it easier to ask for information about specific policies than to find the information in HRM documents. Manager 1 felt that information was often held in people’s heads, rather than in documentation.

5.2.1.2 Personal Networks

The lack of documentation about issues within the HRM department leads to a reliance on other people within the HRM department for information (Manager 4). As discussed by Markus (2001), the problems with missing documentation are compounded if employees leave.

Adviser 5 had recently experienced a situation where documentation about a decision was not available, and the person who had made the decision had left the organisation. Hence no rationale for the decision was available. Generally, the HRM department has a low staff turnover rate (Officer 1) so the reliance on other people for advice is less problematic than in an organisation where there is a high staff turnover rate. However, staff loss is a potentially high risk for the department.

Adviser 4 had also recently experienced a situation where documentation was not available. Adviser 4 fell sick after a period of holidays; during Adviser 5’s recuperation, management wanted clarification about the project. However, Adviser 5 had not told anyone where the documentation for the project was, and had not updated anyone of their work before going on holidays. Hence the information was only available via Adviser 5, who had to work from home to resolve the situation.
Officer 1 felt that personal networks were important because often information such as conclusions was missing from case files. Conclusions to cases were often undocumented because people expected to stay employed within the HRM department for a long period of time (Officer 1). The low staff turnover experienced by the HRM department means that experienced HRM employees are often sought out for advice when information is missing from case files.

5.2.1.3 Locating Information

SWPro may also face challenges in locating information in documentation (Markus 2001). Some of the SWPro experienced issues in finding information from the HRM information system, PeopleSoft. Although Adviser 5 felt that PeopleSoft had led to better reporting in some areas, other SWPro felt that the reporting capabilities of the system were limited.

Officer 1 thought that not all HRM staff understood how the system worked, and therefore entry errors limited the reporting capabilities from the system. Other 2 felt that the reporting of the system was limited due to the lack of experience within the HRM department of working with data. Because the PeopleSoft system was primarily used by the HRM officers, the information relevant to advisers and managers was rarely accessed (Adviser 5). Manager 1 felt that PeopleSoft was poorly integrated into the HRM department, and Manager 4 felt that the complex, out of date user manuals limited use of the system.

The SWPro did not discuss problems with finding information in electronic documents. However, some discussion about the use (and non-use) of electronic documents did occur. Other 2 felt that the department had problems with re-using documented knowledge about cyclic events, such as training sessions (see section 2.2 for more detail).

Problems with using electronic documents were reflected in comment about the HRM file server. Many of the SWPro (Other 2, Adviser 4, Officer 1 and Managers 1 and 4) maintain personal networks to seek advice on issues, rather than using electronic records of situations. Structural problems with the
server were also experienced; see Chapter 5, section 4, Technology for more details.

Most of the SWPro wishes for technology focused on better access to information. For example, Other 2 wished for protocols for file contents, naming and storage on the server; Adviser 4 wished for consistent naming of files and faster, easier access to information and Managers 1 and 4 wanted to be able to intuitively search for information.

5.2.2 Potential Resolutions

Markus (2001) recommends maintain the content and supporting searching for records to promote successful knowledge reuse by SWPro, as well as requiring documentation of rationale knowledge. The frustrations of the SWPro (primarily around better access to information) show that Markus’ recommendations have not been implemented in the HRM department.

For example, Officer 1 found that conclusions, which could form an important part of the context, were often missing from case files. Although Officer 1 was careful to ensure that they included conclusion on case files, their behaviour was not because of departmental incentives, but because Officer 1 expected to leave the department in a short period of time.

The wish lists of SWPro (see Chapter 5, section 4.3) focus on better access to information, also demonstrating that support for searching documents is not available. Hence within the HRM department, the knowledge reuse situation of SWPro is consistent with Markus’s characterisation where no or limited attempts have been made to promote knowledge reuse.

5.3 Shared Work Practitioners

In this section, the Shared Work Practitioner (SWPra) knowledge reuse situation is applied to the HRM department. This section focuses on the issues SWPra face when locating knowledge or expertise (Markus 2001) within the HRM department. In particular, issues relating to the HRM file server, and the strategies use to overcome server issues are discussed.
SWPra are people doing similar work in different situations. SWPra develop knowledge for other producers to use. HRM Group officers, advisers and managers are examples of SWPra (Officers 2, 3 and 4; Advisers 1, 2, 6 and 7; and Managers 2 and 3).

As discussed in section 2.1 of this chapter, the Arts, Business, Science and Administration divisions carry out similar work for different clients of the university. Each of the divisions follows the same policies, although at times policy application may differ (Officer 4). Some differences in work occur because of the preferences of the division’s Pro-Vice Chancellor (PVC) (Adviser 7), because of the different teaching and research activities of the HRM department’s clients (Manager 2) or from different interpretations of grey areas in the HRM policies (Adviser 1). Specific needs of each division may also lead to different processes (Adviser 6).

For example, the Science division has more clients who work off campus (in research groups or commercialisation units) than the Arts, Business or Administration divisions (Officer 2). The Arts, Business and Science divisions all deal with academic staff whereas the Administration division handles the general staff of the university. There is much higher staff turnover in general positions than in academic positions, and hence the Administration division has a different human resource focus to the other divisions (Manager 3).

5.3.1 Challenges and Issues for Shared Work Practitioners

Because SWPra do similar work in different settings, they face few or no problems in framing the questions to ask when they need expertise or knowledge (Markus 2001). Similarly, once the expertise or knowledge has been located and selected, SWPra have few problems applying the knowledge or expertise.

Instead, SWPra often experience challenges in locating and selecting knowledge or expertise (Markus 2001). Markus (2001) suggests that SWPra use the strategies of using networks of contacts to locate experts or expertise to overcome knowledge or expertise location challenges, and using knowledge of people’s reputations to overcome selection challenges. The use
of personal networks is a prominent feature of SWPra in the HRM department.

The location of knowledge or expertise may be problematic for SWPra. The focus of this study of knowledge management has been on the role of technology in supporting knowledge management. Hence the discussion of issues relating to the location of knowledge will be limited to technical aspects. The use of technology to source information in the HRM department is limited in part by problems with the HRM file server.

5.3.1.1 Locating Information

The inconsistent location of information and documents stored on the HRM file server is problematic for most of the group advisers. Advisers 1, 2 and 7 felt that the server was not used consistently and was therefore hard to navigate. Manager 2 also found the server difficult to use because of the inconsistent locations of documents. Advise 6 felt that the server was easy to use provided that HRM staff stored information on the server consistently. In contrast, the HRM group officers (Officers 2, 3 and 4) found the server easy to use.

Frustrations with the HRM file server were also expressed in the technology wish-lists of HRM group officers, advisers and managers. Adviser 2 wanted to replace the file server with a system such as Lotus Notes Domino system, so that information would be stored consistently, easy to search and would help with controlling document versions. Officer 3 wanted more consistency in the naming of files on the server. Adviser 7 wanted an easier way to find information and Manager 3 wanted a more interactive system that would provide context as well as information. Officer 1 imagined a system that would push them in the right direction for information. Manager 2 felt that the user friendliness and simplicity of technology was important. Officer 2 wanted something that would make working with computers easier.

The HRM file server could potentially hold all the HRM department’s information about their work. However, the server is often not used to locate knowledge or expertise within the HRM department. Instead, personal
networks and advice from long-term HRM employees is used. Issues with the server are also reflected in the wishes for technology given by employees in interviews. Hence the HRM file server is problematic for SWPra within the HRM department, and is an area in which improvements can be made.

5.3.1.2 Personal Networks

Markus (2001) suggests that SWPra overcome challenges in locating knowledge or expertise by using personal networks. Knowledge and expertise are then evaluated on the reputations of the people the knowledge or expertise is sought from. Within the HRM department, the use of personal networks is common and is discussed below.

The use of personal networks is typical behaviour of both HRM officers and advisers. The group officers and advisers form networks with other officers or advisers to seek advice on solving problems, find out how other divisions are doing things and how to use the HRM information system, PeopleSoft (Officer 2). For example, Officers 3 and 4 used networks of other officers to seek advice regarding the HRM information system. Officer 2 rang others in their division when they encountered problems. Adviser 7 regularly contacted other advisers to learn new processes while Adviser 6 sought advice when they encountered “odd” situations. Advice from the people involved with the case gave advisers an understanding of the process that led to the outcomes documented within the department (Adviser 6). Adviser 2 indicated that they developed relationships with certain people (for example, in the payroll area) that Adviser 2 then contacted whenever they had a query in that area.

The main technology for storing information in the HRM department is the HRM file server. However, the server is often not used and the Strategy of using personal networks to source information is applied instead. Another Strategy for locating knowledge or expertise within the HRM department is to call upon advisers or officers that have been employed within the department for along (often over 10 years) period of time.
Another widely discussed influence on where knowledge or expertise was sought from was the length of time a person has been employed within the HRM department.

The HRM department has a low staff turnover (Manager 3, Officer 1). For example, Adviser 1 had worked within the HRM department for 22 years; Adviser 6 for 20 years; Officer 4 for 13 years; Adviser 3 for 12 years; and Adviser 5 and Other 2 for 10 years. Employees that have been in the department for a long time are valuable because of their links to other people in the department (Manager 3).

Experienced members of the HRM department are also good sources of knowledge, and are often contacted for advice (Advisers 6 and 7). Adviser 6, who has been employed in the HRM department for 20 years, was often contacted for advice and felt that the HRM department was “tapping into” Adviser 6’s knowledge before they retired. Manager 3 was actively trying to capture the knowledge of the experience advisers and officers within the Science division because of the problems experienced when two long-term members of the division retired.

5.3.2 Potential Resolutions

Markus (2001) suggests that promoting the reuse of knowledge by SWPra should involve repackaging, decontextualising and providing appropriate search facilities for knowledge along with “pushing” knowledge to SWPra and providing incentives.

The HRM department is already repackaging and pushing knowledge to some SWPra with the PeopleSoft system training provided for the officers and advisers by the Systems Division. Expert PeopleSoft knowledge is cultivated in the Systems division where it is repackaged for SWPra in the form of training on specific PeopleSoft activities.

The training system also clearly identifies experts for further advice. Some experts are then sought out by Expertise-seeking novices, as discussed in section 2.3.
While the training program has some limitations (such as poor attendance rates by advisers), the high level of attendance by officers (75%) show that it is a valuable mechanism for many SWPra. A similar program could be used to enhance the use of other technologies (such as the file server) within the HRM department.

5.4 Expert Seeking Novices

In the previous section 5.2, the work of group officers and advisers was characterised as a SWPra knowledge reuse situation. As SWPra, the work of group officers and advisers is similar (providing advice and services to clients within the university) but the work is done in different settings. The main work of the group officers and advisers does not involve contact with the Central section of the HRM department.

Expertise-seeking novices need advice so that they can answer expertise-related questions, without having to acquire the expertise themselves (Markus 2001). Expertise-seeking novices are, “people with an occasional need for expert knowledge that they do not possess and do not need to acquire themselves because they need it so rarely” (Markus 2001). The HRM group advisers and officers are expertise-seeking novices when they seek advise on equity, indigenous employment, industrial relations, health and safety and Systems issues.

5.4.1 Experts in the Department

Experts in the Central section identified in this research are Adviser 3, who is the contact for queries about industrial relations; Adviser 5, who acts as a contact person for systems queries within the HRM department; Adviser 8, who coordinates the HRM health and safety strategies; Other 1, who is the principle adviser for equity, diversity and strategic planning; and Other 3, whose role as the coordinator of indigenous Australian employment is to help Australian Aboriginal and Torres Strait Islander people to obtain equitable employment and career development opportunities at Griffith University (University 2003b).
Other 1 provides equity advice to “Anyone ... if they need advice on equity and policy”. The HRM group managers should be contacted when equity advice is needed, rather than contacting Other 1 directly. However, Other 1 often finds that group managers are by-passed and Other 1 is contacted directly when equity advice is needed.

Other 3 offers advice on how to encourage indigenous Australians to apply for employment within the university. Other 3 often has meetings with other HRM employees (including group officers and advisers) to discuss any issues or queries. Other 3 interacts with people “as needed”. For example, Other 3 gives advice to group advisers on how to attract indigenous Australian applicants for positions that may be emerging in the group section.

Adviser 3 provides specialist industrial relations advice to group officers and advisers. If group officers have industrial relations issues, the officers contact specialists in the Central section such as Adviser 3.

Adviser 8 co-ordinates the workplace health and safety and workplace rehabilitation efforts of the HRM department. HRM advisers are responsible for following workplace health and safety policies and ensuring safe, early return to work for any injured employees. Group advisers contact Adviser 8 for advice on any workplace health and safety issues.

Adviser 5 supports the use of the HRM information system, PeopleSoft, which is mainly used by HRM group officers. Adviser 5 often finds that people seek advice directly from them rather than following official request channels, because people want their problems fixed straight away. Officer 4 seeks out PeopleSoft expertise from Adviser 5 and others in the Systems area if advice from other group officers is not sufficient.

Like the SWPro and practitioners, expertise-seeking novices face a number of challenges within the knowledge re-use situation. In the next section, the challenges and facing expertise-seeking novices within the HRM department are discussed.
5.4.2 Challenges and Issues for Expert-Seeking Novices

ESN may experience challenges when formulating the questions they need answered, locating suitable experts (because of problems in framing the questions), evaluating the expertise or knowledge and applying the knowledge or expertise (Markus 2001).

Within the HRM department, group officers and advisers do not appear to have problems locating expertise held by experts in the Central section. In most cases, the expertise that is being sought comes from individual experts, rather than case or general documents. Expert knowledge that is only available from other people in the HRM department is vulnerable to being lost if employees leave the organisation. Two example of expert knowledge going missing were given in different interviews.

Adviser 4 had recently taken leave during a project, expecting to be away from the office for two days. However, Adviser 4 became ill and had to take extra time off work. Before taking leave, Adviser 4 had completed all the tasks on the project, so they didn't have to explain the project and then have another employee complete work on the project. Because Adviser 4 hadn't updated anyone on the project and was unexpectedly ill, problems arose when management wanted to be briefed on the project.

"Of course, the day that I was meant to be coming back from leave, the PVC comes down and wants to see me about things. I'm not here, no-one knows what I had done before I went away, no-one knows where I keep the documentation. So they ring me at home, and the only way that we can progress the project at that stage was for me to sit on my computer at home connected to work. People weren't briefed, and it's not just the fact that I didn't tell someone where everything was, also I was working on my own on this project, and even if I sat down for half an hour on the phone and tried to tell them they wouldn't understand. I had to do it myself. You learn from that, that you mustn't ever consider that you are going to be here tomorrow."

Adviser 5 had recently encountered problems with understanding the way in which the PeopleSoft system was configured. Configuration choices were not all documented, and once people left the HRM department they took expert knowledge of why the system had been configured in certain way. People
leaving the department meant that now only a handful of people involved in the implementation were still employed, and only certain sections of the system were fully understood.

5.4.3 Potential Resolutions

To overcome challenges such as the loss of expert knowledge, Markus (2001) suggests that heroic efforts should be made to extract as much expert knowledge as possible from employees that may leave the organisation. Within the HRM department, long employment histories are common. Often employees with a long history within the department are contacted for advice. Manager 3 is currently undertaking an effort to extract as much expertise as possible from their officers, after other long term employees left the department and their expertise was not captured.

"I spent last year out of HRM and came back and I'd lost three of my really experienced advisers who were like my 2IC's. I've actively put in place a range of things not to have it happen again. Not that you can stop people from going, but I've put in place a position ... to build up the knowledge, formal and informal, of the other advisers and officers in the group. She's someone who has been here [for] 10 or 15 years, she has a lot of depth and breadth of knowledge about processes policies people. I know that in 2/3 years she'll probably retire and I will want to capture that somehow, and build up others that are going to have that capacity."

Officer 4 also felt that management was tapping their knowledge, because they had been employed in the HRM department for a long period of time and were nearing retirement age. This shows an effort by the HRM department to repackage their knowledge so that it can be reused after Officer 4 leaves.

Attempts to capture and document the expertise of HRM employees using current technology within the department would face difficulties. The main technology used for storing documents, the HRM file server, is limited in use due to a number of issues surrounding access to files stored on the server, and the content of files on the server (see sections 4.1 and 5.2 for further discussion). The HRM file server has the potential to support expertise-seeking novice knowledge reuse situations, hence supporting knowledge
management within the HRM department. The potential for the file server is discussed further in Chapter 7, Technology Support for Knowledge Management.

6 Chapter Conclusions

This chapter has outlined the work done by the HRM department, the difference between the Group and Central sections and the use of technology within the HRM department. The chapter has addressed the second research question, How does the group carry out work, and are there distinct difference in the work patterns between groups within the organisation? Especially, how is technology used, perceived and wanted within the (groups of the) organisation?

The Group and Central sections provide different but related services to the university. The Group section provides HRM advice directly to clients via the HRM group officers. The HRM group advisers manage on-going HRM issues for clients (such as performance reviews). The group managers coordinate the activities of their respective areas and provide a link to the Central section of the HRM department. A full discussion of the Group section’s work is given in section 2.1 and the Group section’s interactions are discussed in section 3.

The Central section of the HRM department developed HRM policies and projects that contribute to the strategic direction of the university (see section 2.2). The Strategy group of the Central section rarely has contact with HRM clients. The Other group has some contact with HRM clients when it is needed, while the Systems group maintains regular contact with the group officers (and some group advisers) to provide PeopleSoft training and updating (see section 3 for further discussion of interaction between the sections).

Contacts between HRM employees provide important support for HRM work. To assist with everyday and novel problems, Central and Group section staff use practitioner networks within the HRM department. For example, the Group officers seek out other group officers when the experience problems
with the HRM information system, PeopleSoft, or if officers encounter unusual situations (see section 3.3 for further discussion).

Discussion about the technology used in the HRM department centred on the HRM file server and the HRM information system, PeopleSoft. Most HRM employees found the server and PeopleSoft frustrating. The group officers were the most comfortable using the server and PeopleSoft. The group advisers and managers, and the Central Strategy and Other groups rarely used the PeopleSoft system. The group advisers and managers experienced fewer issues with the server than the Central section employees. The group officers, advisers and managers technology wishes focused on user friendliness, while the Central group employees wished for better searching and overall structure for technology. A summary of the comments about technology in the HRM department is shown in the table below.

<table>
<thead>
<tr>
<th>WHO?</th>
<th>SERVER COMMENTS</th>
<th>PEOPLESOFT COMMENTS</th>
<th>TECHNOLOGY WISHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group Officers</td>
<td>Easy to use and navigate</td>
<td>Main users</td>
<td>Consistency</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data entry</td>
<td>Streamline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ask for help</td>
<td></td>
</tr>
<tr>
<td>Group Advisers</td>
<td>Easy if everyone is using it right</td>
<td>Rarely use</td>
<td>Consistency</td>
</tr>
<tr>
<td></td>
<td>Needs better organisation</td>
<td>Complicated</td>
<td>User friendly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ask for help</td>
<td>Version control</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Better information</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>currency</td>
<td></td>
</tr>
<tr>
<td>Group Managers</td>
<td>Easiest technology to use Inconsistent</td>
<td>Used least</td>
<td>User friendly</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Static</td>
<td>Better interaction</td>
</tr>
<tr>
<td>Central Strategy</td>
<td>Inconsistent Duplication</td>
<td>Not used to full capacity</td>
<td>Consistency</td>
</tr>
<tr>
<td></td>
<td>Everything available if you search enough</td>
<td>More general/better information management</td>
<td>Fast, easy access</td>
</tr>
<tr>
<td></td>
<td></td>
<td>than in old system</td>
<td>Better “how”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not fully understood</td>
<td></td>
</tr>
<tr>
<td>Central Systems</td>
<td>Frustrating Well organised</td>
<td>Reluctance to learn</td>
<td>Copy people’s brains</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manuals outdated</td>
<td>Better technology structure</td>
</tr>
<tr>
<td>Central Others</td>
<td>Endless, like Russian Dolls</td>
<td>“Heebie-Jeebies”</td>
<td>Copy people’s brains</td>
</tr>
<tr>
<td></td>
<td>Ask for help</td>
<td>“Don’t go there”</td>
<td>Better search</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Own IT person</td>
</tr>
</tbody>
</table>

Table 13: Technology perceptions in the HRM department

Using Markus’ (2001) knowledge reuse situations of SWPro, SWPra and Expertise-seeking novices, this chapter has explored the work of the HRM department. Markus’ concepts were found to accurately reflect the HRM department’s work and the challenges that different knowledge reuse
situations faced. For example, many of the SWPro experienced problems because the rationales for decisions were not recorded. The divisions within the Group section of the department were an illustrative case of SWPra and the knowledge reuse problems that may occur when information is applied in similar but different context.

SWPro and SWPra rely on low staff turnover and employee's personal networks to overcome problem with the content and location of knowledge documentation, and to maintain expert knowledge.

While all Markus' knowledge reuse situations could be seen in the HRM department, the most useful distinction was between expertise-seeking novices and SWPrac or SWPro. Expertise-seeking novices encountered unique problems reusing knowledge such as identifying appropriate sources of information and ensuring that other people within the HRM department know about their work. The problems of SWPro and SWPra were offset using personal networks for information, but in the case of expertise-seeking novices these strategies were not as wide-spread or successfully applied.

Problems experienced by novices seeking HRM expertise are likely to increase in the future, as many of the long-term employees are nearly retirement age; when they leave the department, valuable knowledge and personal networks will leave with them. A valuable area of further research could be to further explore the differences between SWPro and SWPra and expertise-seeking novices knowledge reuse situations. Future research could be used to improve knowledge management practices as well as improving induction and exit procedures for employees.

This chapter has described how the organisation carries out its work, and has explored the differences in the work practices within the sections and divisions of the organisation. This has demonstrated that there are distinct work groups within the HRM department and that they have different knowledge management needs. The different needs were also reflected in the different perceptions and wish-lists for technology discussed in sections 3 and 4.
CHAPTER 6: PERCEPTIONS

1 Introduction

Chapter 6: Perceptions answers the first research sub-question, how are knowledge management, knowledge and organisational knowledge perceived within the organisation?

This research has adopted a social constructivist view of knowledge (see Section 3.2 of Literature Review). Hence the perceptions of knowledge, organisational knowledge and knowledge management have been explored. Typically, empirical studies into KM fail to explore organisational or group perception of knowledge management, knowledge and organisational or group knowledge. Understanding how the organisation sees knowledge, organisational or group knowledge and knowledge management will help to predict the nature knowledge management activities within the HRM department.

The perceptions of knowledge, group knowledge and knowledge management will be used in chapter 7 to explore how technology could be used to support knowledge management within the HRM department.

The HRM department’s perception of knowledge management is shown to include many concepts that have been grouped into sources, properties, actions performed, uses, methods and objectives. These groupings have been drawn from the data. The perception of knowledge management within the HRM department is shown diagrammatically at the start of Section 2. Section 2 also discusses each of the groupings in depth.

The HRM department perceives knowledge and organisational (or group) knowledge to be constructed of factual and social aspects. The perceptions of knowledge and organisational knowledge are discussed in section 3.
2 What is Knowledge Management?

Participants were asked to describe what they thought was meant by the term, knowledge management. By asking each participant for their own definition of knowledge management a view of what the organisation saw as knowledge management emerged, rather than the researcher’s view of knowledge management (discussed in Section 4 of Chapter 2, Literature Review) or other pre-defined views (for example, consulting firm’s definitions or knowledge management tool vendor’s views).

The definitions of knowledge management were examined and key terms or descriptions extracted. For example, the definition of knowledge management from Officer 3 was “To ensure that HR as a whole is working together to achieve its goals, which is to assist its clients”. From Officer 3’s definition the terms working together, achieving goals and assisting clients were extracted. Each of the terms taken from the participant’s definitions were mind-mapped onto an A4 piece of paper. After all the key terms were identified and mapped they were grouped according to commonalities.

Some groupings quickly emerged. For example, terms describing information, data, knowledge or people’s skills were all grouped as sources for knowledge management. Many of the verbs were grouped together as actions, as they referred to some sort of activity within knowledge management. Terms describing why knowledge management should occur were grouped as objectives.

Examination of the groupings revealed that further analysis was necessary. For example, in the sources grouping were terms such as overlaps, meaningful and formal/informal. In the literature about knowledge, the distinction between types of knowledge is common; for example, knowledge may be referred to as tacit or explicit, or as being individual, social, declarative and so on (Alavi & Leidner 2001). Hence it was decided that some of the initial sources were actually

Comment [Vanessa F1]: How does this answer the research question?
properties of sources; they could apply to any of the instance of the sources grouping. A new grouping called **properties** was added to the diagram.

While large, the actions grouping could not be easily reduced. However, future use and working together have an implicit temporal element not seen in actions such as formatting and organising. Hence a new grouping called **uses** was added to the diagram to include actions with a temporal nature.

Finally the objectives grouping were examined. The instances in the group could be divided into 2 categories; objectives that relate to the overall goals of the department and the university, and the objectives that related to specific work within the HRM department. For example, furthering the business of the organisation is clearly a broad objective, whereas systematically carrying out work is specific to the HRM department. Hence another grouping emerged, **methods**, which contains instances of HRM department work specific objectives.

Table 14 shows the initial groupings taken from participant’s definitions of knowledge management. The bottom section of each column shows the revisions made in the analysis of the groupings.

The elements of knowledge management diagram now had 6 groupings. The definitions of knowledge management were revisited to validate the groupings, and to add any instances that were missed in the first examination. For example, keeping people up to date was added as a use. Accurate was added as a property, as well as being kept as a method.
Based on the groupings in the diagram, it became clear that other instances could be drawn from different parts of participant interviews. For example, participants were asked to define knowledge and organisational knowledge (within their group), and to give examples of both. From the definitions of knowledge and organisational knowledge extra instances were added to the source grouping such as adaptation to the organisation, time and HRM reports.

Another question posed to interview participants was what they thought would be the purpose of knowledge management within the HRM department. The responses to this question were added to the further objectives to the elements of knowledge management diagram. For example, the objectives of identifying, improving and managing process and maintaining networks of knowledge (including improving storage of information and knowledge) were added.
Finally, each of the groupings in the diagram were reviewed and refined where possible. For example, the objectives furthering the business of the organisation and to achieve HRM’s goals were combined into further goals and the business of the HRM department and University. The instances of each group have been alphabetically ordered rather than being listed in order of importance, since little indication of importance was gained from the interviews.

Appendix D maps elements of interviewees definitions to the groupings derived from analysis. The final groupings of the elements of knowledge management are **Properties, Sources, Actions Performed, Uses, Method** and **Objectives**. The diagram is presented on the next page. Each of the element groupings are discussed in detail (sections 2.1 to 2.6 of this chapter) after the diagram.
SOURCES
“Knowing” the organisation and work
Adaptation to the organisation
Communication methods
Culture
Information relating to the university
Email
Documents, files, file registry
University structures
Feedback
History
HRM Reports
Internet, Intranet
Legislation
Meetings
Networking
Organisational memory
People (skills, things known, experience)
Policies
Precedents
Processes/Procedures
Data, Information, Records
Relationships, contacts, interactions
Research
Time
Understanding
University activities
University Information Systems
Workshops, Courses

PROPRTIES
all have
Accurate
Codified
Formal/Informal
Factual
Printed
Links
Meaningful
Overlaps
Static/Active
Structured

OBJECTIVES
Development of people and the organisation, including identifying, improving and measuring processes
Further goals (including strategic goals) and the business of the HRM department and University
Help with change, including staff knowledge retention, training, and keeping people up to date
Maintain networks of knowledge, including improving storage of information and knowledge
Provide better service to clients

METHOD
Accurate
Easy
Efficient
Explicit
Systematic

USES
Uses, Future Use
Keeping people up to date
Working together

Figure 9: Elements of Knowledge Management

to allow

to achieve

in a manner that is
2.1 Sources

The Sources grouping refers to the examples of knowledge, information and data provided by participants; the sources of group organisational knowledge. As discussed in the literature review, knowledge and organisational knowledge are complex concepts that are hard to define. The view of organisational knowledge adopted in this research has been one of social construction, and the examples of Sources have been used to construct a view of organisational knowledge within the HRM department. The view of organisational knowledge is discussed in section 3.0 of this chapter.

It is widely acknowledged that organisational (or group) knowledge is more than the documented knowledge found in organisations; organisational knowledge importantly involves people. The people elements as well as the documented elements of organisational knowledge have been shown in the Sources mentioned by HRM employees.

For example, Adviser 4 said that knowledge management involved “thinking of things that we know”. Adviser 6 thought that knowledge management involved “records and data, people’s knowledge and skills”. Manager 2 referred to the department’s “processes and systems … that are in place to capture people’s experiences and knowledge”. Manager 3 thought that knowledge management involved information that relates to the business of the university.

Adviser 6 used data records and the PeopleSoft system, the file registry and other people as sources of organisational knowledge. Manager 4 thought that organisational knowledge builds up over time, and came from research and finding out what is happening outside the university as well as inside the university. For Officer 1, organisational knowledge came from experiences of dealing with people, advice from people in their own team, trial and error and
“realising that things don’t always work. Different people and different organisations lead to different ideas”.

For Officer 2, Organisational knowledge came from sources such as enterprise bargaining agreements (which fed HRM policies), and adaptation to the organisation, where people “end up in the same frame of mind as everybody else”. Officer 3 felt that good relationships with advisers, managers and other officers were important when sourcing organisational knowledge. Adviser 2 found that much of the organisational knowledge needed by advisers was stored in people’s heads, and as such, networks of people and access to networks of people were an important source of organisational knowledge.

Similar to the results of McAdam and McCreedy (1999), the interviewees perceptions supported the view of knowledge as a “multi-faceted” concept that involves explicit (written and formally articulated) and tacit (held by people; non-explicit) dimensions. A further discussion of the aspects of knowledge and organisational knowledge is given in Section 3.3.

The items included in the Sources grouping implies that the HRM department considers people, and their skills and experiences to be as important as the policies, procedures, records, information and data that is available to the department. This indicates that both a codification and personalisation knowledge management strategy is needed, as proposed by Hansen, Nohria and Tierney (1999). However, Hansen et al. (1999) suggest an 80/20 application of strategies, as they believe it is unlikely that an organisation is strong in both codification and personalisation.

A codification strategy focuses on using technology to transfer documented information, whereas a personalisation strategy focuses on interactions for sharing and creating knowledge. Technology has obvious applications for a codification strategy, but it is unclear how
the use of technology to support a personalisation strategy could occur.

The Sources grouping is related to the groupings of Properties and Actions Performed. The Sources all have Properties that may or may not apply to each of the instances in the Sources group. The instances of the Actions Performed grouping all occur on instances of Sources.

### 2.2 Properties

Related to the Sources grouping is the Properties grouping. Instances from the Sources group may have properties contained within the Properties group. For example, information, systems and people’s skills may be formal or informal, static or active. Four participants referred to Properties (of Sources).

In the knowledge management literature, the most common distinction between sources of knowledge is the explicit/tacit dimension. Explicit knowledge is written and formally articulated, whereas people hold tacit knowledge, which is hard to articulate and capture, and is developed from experience (for examples, see Nonaka and Takeuchi, 1995; Schultze 1998). Interestingly HRM interviewees did not mention the tacit/explicit knowledge distinction, although Adviser 7, Manager 3 and Others 1 and 2 all referred to formal or informal aspects of knowledge in some way in their knowledge or organisational knowledge definitions.

The Properties mentioned included static and active examples of knowledge (Other 2), and accuracy of knowledge sources (Adviser 8). Manager 3 referred to sources of knowledge that had “links and overlaps and crossovers”, where knowledge management involved “order[ing] it so ... it can be meaningful to people”.

While the HRM participants identified a range of information, data and knowledge sources, fewer properties of the sources were
identified. This indicates that there is yet to be systematic examination or consideration of data, information and knowledge sources.

2.3 Actions Performed

The Actions Performed grouping contains activities that are performed on examples of the Sources grouping. Nearly all participants (15/19) included some form of action in their definition.

In the knowledge management literature there is no accepted, generic set of knowledge management activities. For example, Holsapple and Joshi (2002a) proposed a set of generic knowledge manipulation activities that are acquisition (from external sources), selection (from internal sources), use and internalisation. Alavi and Leidner (2001) suggest that IT-based systems to support knowledge management can address knowledge creation, storage/retrieval, transfer and application. Traditionally, the focus of Information Technology (IT) in supporting knowledge management has been on the storage and retrieval of codified documents.

The interviewees identified a wide range of activities in their definitions of knowledge management. Many of the activities identified by participants could be considered repetitions, and many activities overlap. In Figure 9, which shows knowledge management from the participant's point of view, the Actions Performed taken from participant definitions have been alphabetized but otherwise are unrefined.

Adviser 1 talked about organising information about a particular topic; Adviser 2 stated that knowledge management was “A way of collecting and storing ... the knowledge that the organisation has”. Adviser 7 also referred to the collection of information and knowledge; Manager 1 referred to the capture of knowledge residences. Adviser 3 talked about identifying and managing
knowledge. Adviser 4 thought that knowledge management involved retaining what the department knew. Adviser 6 focused on record keeping while Manager 2 thought knowledge management involved “a repository of … understanding and knowledge”, as well as how the department applies policies and procedures. Manager 3 thought that knowledge management was about capturing or formatting information related to the business of the university.

Manager 4 talked about retaining people's knowledge. Officer 1 felt knowledge management involved containing information and Officer 4 talked about managing different types of knowledge. For Other 1, knowledge management involved structuring data and information. Other 2 talked about documenting active and static information. Other 3 talked about collection, control and storage of knowledge. Adviser 1 thought that part of knowledge management would involve document management. Manager 1 thought that knowledge management involved the harnessing of information for organisational development.

A wide range of actions were identified from the interview participant's definitions of knowledge management. The actions ranged from identification of knowledge sources to the reviewing, capture and documenting of sources. Many of the actions overlapped (for example formatting and organising). None of the interviewees mentioned a cycle of actions, referring instead to individual activities such as capture and containing. This indicates that more consideration of how the sources of knowledge, information and data are acted upon is needed so that use of the knowledge sources can occur. Without a clear approach to the actions on organisational knowledge sources, the sources of organisational knowledge will not be consistently manipulated for future use.
Interestingly, the interview participants mentioned fewer actions and uses when asked what their role would be in knowledge management. The actions and uses mentioned included identifying, contributing, sharing, using, inputting, retrieving, gathering and exchanging information.

However, several participants saw their role as including the facilitation of knowledge management. For example, Other 2 thought part of their role would involve framework development and Management 1 thought they would be involved in the organisation of knowledge management within the HRM department. Manager 3 saw themselves as a guide for staff, and Manager 4 thought their role would be involving staff in knowledge management. Adviser 8 thought that strategy development for knowledge management would occur at a higher level within the HRM department. None of these roles were mentioned in the definitions of knowledge, and all the mentions of knowledge management facilitation came from or referred to management levels within the HRM department. This indicates that a “top down” approach would be the most likely way in which knowledge management would be introduced to the HRM department.

The Uses grouping, which addresses how sources of knowledge that have been acted upon are to be used, is discussed in the next section.

### 2.4 Uses

The Uses grouping refers to actions that have an implicit temporal aspect. Only three uses were identified from participant interviews; Use/Future use, keeping people up to date and working together.

Others 1 and 3 thought that knowledge management would allow future use of information; “the collection, the review, the recall of it, ... for future usage” (Other 3).
For Officer 3, knowledge management should ensure that the HRM department was working together. Officer 2 thought that knowledge management should keep people within the HRM department informed; “I guess making sure that ... people are up to date” (Officer 2). Similarly, Adviser 5 said that knowledge management means that “making sure that there is more than one person who knows what is going on”.

The Uses grouping is closely related to the Actions Performed grouping, since uses are just actions with a temporal aspect. Like the Actions Performed grouping, the instances in the Uses group overlap at times (for example, working together and keeping people up to date). This seems to suggest that like the Actions Performed and Sources, there is more thought needed on what uses knowledge management will have within the HRM department.

The Uses grouping is related to two other groupings, Methods and Objectives. The Methods grouping refers to the way that the Uses are carried out. The Objectives grouping explores the outcomes of knowledge management within the HRM department.

### 2.5 Methods

The Methods grouping refers to how Actions and Uses of Sources should occur. The examples of Methods provided by three of the nineteen participants include making it easy to find documents (Adviser 1). Other 2 thought, “the words systematically and explicitly are important to knowledge management”; Other 3 thought that knowledge management needed to make processes efficient. Adviser 8 thought that knowledge management could improve accuracy in the department.

### 2.6 Objectives

Objectives were mentioned by eleven of the nineteen participants in their definitions of knowledge management. Other objectives of
knowledge management were taken from another interview question about the purpose of knowledge management. Some objectives related to staff retention or training, while others focused on strategic goals.

Officer 2 thought that knowledge management should help people adapt to change. Adviser 1 thought that knowledge management should help with staff training, and Adviser 2 thought that knowledge management should help with retaining people's knowledge when they moved within the department or organization or left the organization. Officer 1 felt that knowledge management was a way of dealing with staff loss, making sure that information was available after people had left an organization.

For Adviser 7 the purpose of knowledge management was so that knowledge could be shared, and wasn't contained by one person. Adviser 6 thought that an objective of knowledge management should be to allow people to draw on the right knowledge. Officer 1 thought that knowledge management should provide a central body of knowledge for case histories.

For Officer 3, knowledge management should allow the HRM department to achieve its goals of assisting their clients. Adviser 3 thought that knowledge management should help the HRM department achieve the university's goals. Adviser 7 thought that knowledge management should help communicate (action) the university's strategic goals. Other 1 felt that knowledge management should allow information to be used to further the business of the organization.

The objectives relating to staff training and retention are reflected in the emphasis of experience and people as sources of knowledge, as discussed in sections 5 and 6.1. People are an important source of knowledge and organisational knowledge for the HRM department,
so it is logical that an objective of knowledge management should be to maintain the people sources.

The wide range of objectives of knowledge management given by interviewees is an area of concern. A clear objective for knowledge management is needed so that a systematic approach to knowledge management can be undertaken.

2.7 Conclusion: Knowledge Management

The Elements of Knowledge Management diagram (Figure 9) represents the perception of knowledge management within the HRM department, answering part of the first research sub-question (How is knowledge management perceived within the organisation?). The groupings are inter-related and overlap in places, especially between the groupings of Actions Performed and Uses. The instances in each grouping are not meant as a definitive list for all knowledge management efforts, but instead illustrate how the HRM department currently sees knowledge management.

Overall Figure 9 shows that the HRM department is at the beginning of its consideration of knowledge management. This is indicated by a lack of clear and common definition of knowledge management, the wide range of knowledge management objectives, a limited understanding of the properties of knowledge sources and the multitude of actions proposed by the definitions.

In Section 3, the perceptions of knowledge and organisational knowledge (sources) are explored.

3 Knowledge and Organisational Knowledge

The first research sub-questions asks about the perceptions of knowledge management, knowledge and organisational knowledge. Section 2 explored the organisational perceptions of knowledge management. In this section, the perception of knowledge and
organisational knowledge are discussed to answer the second part of
the first research sub-question.

3.1 What is Knowledge?
Participants were asked to define what they thought was knowledge.
This question was asked after a discussion of each participant’s work
context, and before any discussion of knowledge management within
the HRM department occurred. Participants were prompted to
discuss their own views of knowledge, and the interviewer did not
suggest any possible concepts for the knowledge definition.

The definitions of knowledge offered by participants fell into three
themes. The most common theme was to define knowledge as what
is known (ten participants). Five participants used the theme of
relating knowledge to information. Three participants defined
knowledge using the theme of formal and informal aspects.

The data, information and knowledge hierarchy is the most widely
known view of knowledge and was discussed in Section 3 of Chapter
Two, Literature Review. The perception of knowledge as something
built from information was shown by five of the HRM participants
(Advisers 1, 2 and 8, Other 3 and Manager 1). Sample definitions
include Adviser 1, who saw knowledge as “education, accumulation
of information”. Similarly, Adviser 2 saw knowledge as

“more than information, it's a step up from information. It
[knowledge] can be in your head or it can be stored
somewhere. [There is] No reason why you have to keep
knowledge to yourself, it should be shared”.

The most common definition of knowledge was as what somebody
knows. Definitions within this theme talked about knowing, working,
experience and understanding. The definitions from Officers 1, 2
and 4, Advisers 3, 4, 5, and 6, Managers 2 and 4 and Others 1 and 3
all fitted the knowledge as what is known theme.
Other 1 stated that knowledge “is about the stuff that you know, and that’s a combination of data and information and experience”.

Adviser 3 defined knowledge as an “a collection of experiences and ideas ... at some point in time you might be called on to recall or use some of that experience”. Officer 3 defined knowledge in terms of where it came from (courses, staff development) and what is gained from knowledge (enhanced abilities, up to date skills and building knowledge).

Adviser 4 felt that knowledge only came from a synthesis and understanding of data and information.

“when people look at what they know they relate details and data and information and it’s an understanding of how all that information fits together. That’s real knowledge. You can quote all the data ... but if you don’t know how it fits together and what difference it makes ... you don’t have knowledge at all” (Adviser 4).

Interestingly, Adviser 6 defined knowledge in terms of what wasn’t known. Adviser 6 saw the most important aspect of knowledge as knowing “where to go for the things that you don’t know”.

Adviser 7, Manager 3 and Other 2 defined knowledge in terms of its formal and informal components. Written artefacts such as policies indicated formal components of knowledge. Informal aspects of knowledge were indicated to be the politics and unwritten learning about the organization. For example, Other 2 defined knowledge as:

“There are things like the policies and procedures, accepted practices for doing things, but more than that, its what sits behind that, the corporate, often unwritten learning about the politics of the place. The informal rather than just the formal” (Other 2).

The question, what is knowledge? was not directed specifically at knowledge used within the HRM department (although some interviewees related their responses to their work). In the next section, interviewee’s were specifically asked for their perceptions of organisational knowledge.
3.2 The Collective Notion of Knowledge

After being asked for a general definition of knowledge, interview participants were then asked for a definition of organisational knowledge. Organisational knowledge is knowledge that is within the social context of an organisation (in this case, within the HRM department). Organisational knowledge is seen as having people, action and information components (Vanhoenacker et al. 1999), as discussed in the literature review.

Three of the interviewees (Adviser 8, Other 2 and Other 3) defined organisational knowledge when asked to define knowledge. Their definitions have been re-considered and discussed in this section as definitions of organisational knowledge.

Five of the interviewees (Advisers 1, 6 and 8, Manager 2 and Other 3) defined organisational knowledge using information. For example, Adviser 1 saw organisational knowledge as “information that is learned about within the organisation”. Manager 2 saw organisational knowledge as “pieces of knowledge that enable your work”.

Like the definitions of knowledge, the largest group of organisational knowledge definitions fell into the theme of organisational knowledge as what is known. Within this theme, organisational knowledge definitions referred to “knowing”, “experience” or “how things work”. The definitions from Advisers 3, 4, 5, and 6, Officers 1, 2 and 4, Managers 2 and 4 and Other 1 all address the theme of knowledge as what is known. For example, Officer 1 defined organisational knowledge as “the history, background, how things have been done, experiences (good or bad) that have come out of that, helping to push the organisation forward”.

Manager 4 defined organisational knowledge as “the awareness of the group”. Interestingly, Adviser 3 did not think that HRM had a collective notion of organisational knowledge.
“I don't know that we look at it collectively, I'm not sure that it's a collective notion. I think there are individuals within HR that have knowledge, somebody like me who has been here a long time and is seen to have corporate knowledge and the corporate history, and I do, and it is very important in an organisation to have that, but I'm not sure we look at it in a collective basis and think HR has all this knowledge. I'm not sure how others perceive corporate knowledge, whether they feel there is any or not.”

Adviser 4 saw organisational knowledge as

"Knowing where things fit. Knowing what and who we are, what our history is, what our culture is, how all the parts fit together. It's not always what you can learn, it's something that you feel more than anything else".

Four participants (Adviser 7, Manager 3 and Others 1 and 2) referred to organisational knowledge in terms of its formal and informal aspects.

The formal aspects of organisational knowledge included the knowledge of “how the university works, the ins and outs of the university, what the structures are and the processes in place” (Manager 1), the constitutional knowledge relating to the university and the legislation that relates to the university (Manager 3), the codified documents and structures (Other 1) and the policies and procedures and accepted practices (Other 2).

Informal aspects of organisational knowledge included corporate/political knowledge (Manager 1), which sat behind the formal knowledge (Manager 1, Other 2).

### 3.3 Aspects of Knowledge and Organisational Knowledge

In this section the definitions of knowledge and organisational knowledge are examined for factual and social aspects, using the work of McAdam and McCreedy (1999). McAdam and McCreedy do not see knowledge as constructed of simply scientific, factual knowledge; they also include the social construction of knowledge.
McAdam and McCreedy's (1999) case study into key knowledge management trends found that participant's defined knowledge using both factual and social dimensions. Indicators of factual dimensions of knowledge included words such as facts, power/status quo, asset, passive and explicit. Indicators of social dimensions of knowledge included words such as skills, experience, judgement, power, learning, trust, sharing, practice and tacit (McAdam and McCreedy 1999).

The definitions given by each participant were examined the key words suggested by McAdam and McCreedy. Additions were made to the key word list when necessary. For example, information was added as an indicator of the factual dimension of knowledge; education was added as an indicator of the social dimension of knowledge.

Based on the responses given in interviews, a revised list of words indicating factual and social aspects of knowledge has been developed and is shown in the table below. The table has three rows; the first row shows the words from the original work of McAdam and McCreedy (1999); the second row shows the additional abstract words indicating factual and social aspects of knowledge; and the third row shows the HRM specific words indicative of the two aspects of knowledge.

<table>
<thead>
<tr>
<th>Factual Aspects</th>
<th>Social Aspects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original List (McAdam and McCreedy 1999)</td>
<td>Skills</td>
</tr>
<tr>
<td>Facts</td>
<td>Experience</td>
</tr>
<tr>
<td>Power/status quo</td>
<td>Judgment</td>
</tr>
<tr>
<td>Asset</td>
<td>Power</td>
</tr>
<tr>
<td>Passive</td>
<td>Learning</td>
</tr>
<tr>
<td>Explicit</td>
<td>Trust/sharing</td>
</tr>
<tr>
<td></td>
<td>Practice</td>
</tr>
<tr>
<td></td>
<td>Tacit</td>
</tr>
</tbody>
</table>
It is interesting that procedures were seen as both factual and social aspects of knowledge. Some procedures were documented, but others were not. “there are procedures there, although I don’t know that they are all encompassing. They are not enough to spell out all the steps” (Adviser 5).

The procedures relating to use of the PeopleSoft system are referred to as job aides. Participants mentioned that although some activities were covered in terms of jobs aids, many other activities were not. In instances where job aides were not available, often officers would consult other officers in their office:

“so it’s a case of hey, did you remember how to do that, because I haven’t done one for 6 months. Maybe ask the other officers first and if they don’t know go to the [systems group]” (Officer 4).

Other processes are also not documented. For example, the HRM server, which is used by all employees, has no process for defining where files should be stored, or what naming format should be used.
“It is people’s own preference for what they keep in the files ... based on what they have become used to doing” (Officer 1).

“We have our own server ... but what you find is a folder where everything is just thrown in” (Other 2).

“Often [files are] named after the person ... and in 6 years no-one will know that you were in charge of that project” (Adviser 4).

“if you look at the server there is HR, and that is split into what is easily accessible and what is confidential. So under HR all, which is open to all HR, you've probably got 20 different folders. I've got one of those, and I also have bits and pieces in others. But I've got [another one] and under that there is another 20 different folders. So you see you've got folders within folders. It’s endless, like Russian dolls” (Other 1).

“There's a heap of information on the sever, there are files everywhere and to me, you just don't know, its not easy to get through, and you are not sure of the quality or the validity of the stuff that you are finding” (Manager 1).

“There are general folders in each group but sometimes it gets a bit unclear about where you save things or where other people have saved things” (Adviser 7).

Hence procedures, where they are documented, are seen as factual aspects of knowledge. When the procedures are undocumented they are seen as social aspects of knowledge, since they are learned through social interactions.

Each of the definitions of knowledge and organisational knowledge were examined for the presence of factual and social aspects, following McAdam and McCreedy (1999). Twelve definitions showed both factual and social aspects in the definitions of knowledge and organisational knowledge.

Definitions from four of the participants (Adviser 6 and Officer 1, 2 and 3) failed to mention factual aspects in one of their definitions. Adviser 6 and Officer 2 did not mention factual aspects in their definitions of knowledge, whereas Officers 1 and 4 did not acknowledge factual aspects of organisational knowledge.
Two of the nineteen participants (Adviser 3 and Officer 2) did not mention factual aspects in the definition of knowledge and organisational knowledge. The emphasis on social aspects in the definitions from Adviser 3 and Officer 2 may be a reflection of the value of relationships and networks in the HRM department. As discussed in section 2.1 the HRM department views networks of people and access to networks of people as important sources of organisational knowledge and the definitions from Adviser 3 and Officer 2 may be a direct reflection of this.

Accepting that social aspects of knowledge are valued within the HRM department, it was interesting that Adviser 8 did not mention social aspects of knowledge in their definitions of knowledge and organisational knowledge.

The following section discusses the definition of knowledge from Adviser 8, which did not acknowledge the social aspects of knowledge.

3.3.1 Issues in the Perception of Social Aspects of Knowledge

Adviser 8 was the only HRM employee that did not acknowledge the social aspects of knowledge either in the definition of knowledge or organisational knowledge.

Adviser 8’s role within the HRM department was as Health and Safety Adviser. As the health and safety adviser, Adviser 8’s responsibility was to “Advise GU on H&S [Health and Safety] policy ensuring legislative compliance” (Interview disclosure). Adviser 8 co-ordinated the activities of 40 Health and Safety Officers, although most of the officers did not report to Adviser 8, and most officers did not work on Health and Safety full-time. Approximately 4 of the officers worked exclusively on health and safety, and Adviser 8 referred to such people as health and safety practitioners.
Adviser 8 was new to the organisation (this person had only been working for HRM for 5 months). Having been in the organisation for a relatively short time, Adviser 8 may have been lacking in the social networks that other employees had developed and used. The lack of involvement in social networks may have lead to Adviser 8’s emphasis on the factual dimensions of organisational knowledge.

Adviser 8 felt that the only informal network that they participated in was with the other full time health and safety officers (health and safety practitioners, approximately 4 people). Only one other participant (Adviser 3, discussed below) reported such a limited experience with respect to informal networks; nearly all participants reported using informal networks. For example, Officer 1 (who had been working in HRM for 8 months, 3 more than Adviser 8) used informal networks (in person within the office or using the telephone) to gain information that they lacked.

Officer 2 (who had been working in the department for one year) also used networks of people within the department to gather necessary information, often in a chain-like fashion. For example, one person might not know the information that is being sought, but could recommend another person or source for that information.

Adviser 3 showed the only other limited experience with informal networks. Adviser 3 specialised in industrial relations, and as such Adviser 3’s role was highly specialised and much of their work had high-risk implications for HRM and the university. Hence Adviser 3 did not find that there were many informal networks of value to them;

“There’s no-one I look to particularly for advice or anything like that, but it’s a specialist area and I immediately ask my boss who is the employment strategies manager ...it’s fairly high risk stuff, ...its dealing with people’s jobs and performance”.

Informal, social networks within the HRM department are further discussed in the next chapter, Context of Work within HRM. However, using the above discussion it seems that there are several possible reasons why Adviser 8 did not acknowledge the social aspects of knowledge and organisational knowledge.

### 3.4 Conclusion: Knowledge and Organisational Knowledge

Demographic reasons such as age, gender, department or education are not relevant to explaining Adviser 8’s view, as participants within the same group (Central), or of the same age or education (48, Graduate Diploma) did not focus singularly on the factual dimensions of knowledge.

The specialised nature of Adviser 8’s role may mean that like Adviser 3, there is little scope for Adviser 8 to seek information and advice within the HRM department. Secondly, as Adviser 8 had only been working within the department for 5 months, it is possible that they had not yet had time to build substantial social networks within HRM.

It seems most probable that the length of time within the department is the major factor in influencing the perception of social dimensions of knowledge and organisational knowledge. However, there is little research done in the area of knowledge perception within organisations and so there is no literature available to support this claim. This is an area in which future research could occur. Adviser 8, with no notion of the social aspects of knowledge, has been with HRM for 5 months whereas Officer 1, who had been with the HRM department for 8 months, recognised the social aspects of knowledge. Further research could indicate if there is a particular time frame for acknowledging the social aspects of knowledge, or if the work context is more influential.
Hence Adviser 8 provided the only definition that did not include both factual and social dimensions. It is possible that this view would change as Adviser 8 continued working within the organisation. Overall though, the perception of knowledge and organisational knowledge by HRM employees involves both the social and factual aspects of knowledge, as demonstrated by McAdam and McCreedy (1999).

4 Chapter Conclusion

This chapter has explored the perceptions of knowledge management, knowledge and organisational knowledge within the HRM department. The exploration of these concepts is not typical within empirical knowledge management studies, but has been used here to understand knowledge, organisational knowledge and knowledge management from the viewpoint of the organisational participants.

Definitions of knowledge often rely on definitions of data and information, assuming that knowledge is a combination of both that brings additional value (for example, Zack 1998). Sometimes knowledge is seen as an object that can be manipulated, and the social setting in which knowledge is applied is not studied (Raisinghani 2000; McAdam and McCreedy 2000). This study and its results have shown that understanding knowledge is enriched by considering its situational, embedded construction. This is consistent with the work of Hislop (2002) and provides a counter example for the knowledge management investigations that focus on the different types of knowledge and the manipulation of knowledge objects (Hlupic et al. 2002).

Analysis of interview data found that knowledge management was seen as a complex concept that involved six element groupings; Sources, Properties, Actions Performed, Uses, Methods and
Objectives. Each of the element groupings contains a number of instances. Often the instances overlap or are repetitious. The element groupings show that knowledge management is not a refined concept within the HRM department, and that the department is only in the early stages of considering knowledge management.

The complex way that the HRM department defines knowledge management is different from many other definitions, which often focus just on the activities involved (for example, Rademacher 1998), or the outcomes of better availability for knowledge users (i.e. Ives et al. 1998).

Most participants see factual and social aspects of knowledge and organisational knowledge. The HRM department also sees networks, relationships and people as important sources of knowledge and organisational knowledge. Any knowledge management effort within the HRM department will need to consider the social aspects of knowledge and knowledge management to be successful. This is consistent with views of knowledge and knowledge management that emphasise its social, embedded aspects (Schultze 1998; McAdam and McCreedy 1999; 2000). How to use technology to support social aspects is unclear, but is further explored in Chapter 7.

This chapter has focused on individual aspects such as knowledge and organisational knowledge, without considering the work context described in Chapter 5. In the next chapter, Chapter 7, Holsapple and Joshi’s framework will be used to construct a wider view of knowledge management and the influences on knowledge management within the HRM department.
CHAPTER 7: INFLUENCES ON KNOWLEDGE MANAGEMENT

1 Introduction

This chapter explores the internal and external influences on knowledge management within the HRM department, and how the influences on knowledge management affect technology support for knowledge management. This chapter answers the third research sub questions, How can technology be used to support knowledge management within the organisation, taking into consideration the organisational context?

Holsapple and Joshi’s (2000; 2002; 2004) framework for knowledge management is used to explore the influences on knowledge management within the HRM department. Holsapple and Joshi identify three groups of influences on knowledge management; Managerial, Resource and Environmental influences. Each of the influences group has been explored using the research data and are discussed in sections two to four.

Analysis of the influences on knowledge management reveals interesting findings for the case organisation and the frameworks used in analysis. The HRM department needs to make significant changes in its technology use before effective support for knowledge management is available for all knowledge reuse situations. Suggestions for improving knowledge reuse (from Markus, 2001) are not easily compatible with some government legislature.

A new environmental influence (outside of Holsapple and Joshi’s work) on knowledge management has also been identified. Exposure – prior experiences with knowledge management – was an influence on activities within the HRM department. This influence was not identified by Holsapple and Joshi, but has important implications for improving knowledge management within the HRM department.
2 Managerial Influences

Managerial influences are one of three influences identified by Holsapple and Joshi that affect knowledge management episodes (2000; 2002; 2004). Knowledge management episodes are instances of knowledge activities and flows between activities (Holsapple and Joshi, 2000). Managerial influences are administration activities involved in knowledge management. Holsapple and Joshi (2000) identify four factors involved in management influences: leadership, coordination, control and measurement. Each of the factors are considered in the following sections.

2.1 Leadership

Holsapple and Joshi (2002; 2004) identify KM leadership as a key management influence on knowledge management efforts. Effective knowledge management leadership should involve role models who can be catalysts for, and coordinate, control and evaluation knowledge management efforts (Holsapple & Joshi, 2000). Knowledge management leadership is linked to a planned approach to knowledge management, leading into the management influence of coordination (see chapter four for an introduction of the management influences on knowledge management). The leadership of knowledge management within the HRM department has been explored through the presence of knowledge management role models within the department.

2.1.1 Role Models

Interviewees were asked to identify any knowledge management role models. One knowledge management role model was identified from interviews and observations. Three Central section employees (Manager 4 and Others 2 and 3) identified Manager 1 as a knowledge management role model. Manager 1 acknowledged that they are the person associated with knowledge management within
Chapter 7: Influences on Knowledge Management

the HRM department; “Whenever the word[s] knowledge management get mentioned everyone looks at me and has a half smile”.

Manager 4 identified Manager 1 as the person within the HRM department that is “always talking about knowledge management”. Others 1 and 2 referred to Manager 1 as the “knowledge management director”. Manager 1 was referred to whenever knowledge management was discussed (Other 1), often in a joking manner; “Not [Manager 1] and his knowledge management bit!” (Other 2). During the HRM meeting that was observed, Manager 1 was referred to as this research was introduced.

Adviser 2 could not identify any roles models for knowledge management. Adviser 2 felt that they had more knowledge about knowledge management than most people in the HRM departments, but did not consider themselves an expert. Adviser 4 identified the HRM director as a role model for KM as the director drove the culture and direction of the HRM department. However, most interviewees echoed the view of Officer 1, who did not identify any role models for knowledge management.

2.1.2 An Open Culture
A positive aspect of leadership within the HRM department is the open, sharing culture towards information. When faced with a new issue or problem, the common action was to draw on personal networks for information (see chapter 5, section 4, Knowledge Reuse Situations). The easy sharing (and reliance on such information sharing) between employees indicates an open sharing workplace culture. The sharing culture of the department indicates positive conditions for knowledge management have been created.

The lack of role models indicates a lack of knowledge management leadership within the HRM department. However the open, sharing
environment of the department indicate a positive influence on and for future knowledge management efforts.

2.2 Coordination
The coordination influence on knowledge management involves the management of dependencies among and between knowledge resources, manipulation activities, processors and other resources (Holsapple and Joshi, 2004). Coordination is closely related to the managerial control influence, which determines the quality and quantity of knowledge resources (Holsapple and Joshi, 2004).

If knowledge management is to be systematically encouraged, a planned approach to knowledge management is needed (Holsapple and Joshi, 2000). The existence of a knowledge management strategy is indicative of a coordinated approach to knowledge management. The lack of strategy indicated limitations in the coordination of knowledge management within the department.

2.2.1 Knowledge Management Strategy
As part of the interview confidentiality agreement and disclosure, interviewees were asked if there was a knowledge management strategy in the HRM department. Only one employee (from 10 interviewed) within the Central section thought that a knowledge management strategy existed within the HRM department. One other employee from the Central section was unsure if the HRM department had a knowledge management strategy. Interviewees were asked to indicate any documents that supported a knowledge management strategy, if one existed. Interviewees identified no documents that supported knowledge management.

Advisers 1 and 3, Officer 1, Other 1 and Manager 4 identified that the HRM group did not collectively discuss knowledge management. Adviser 3 thought that knowledge management was attended to because “it's a bit too hard, it's a bit too conceptual for us to get our mind around”. Adviser 1 had heard the term knowledge
management, but could not remember it being discussed within the
department. Adviser 4, 6 and 8 lacked an understanding of
knowledge management. Adviser 8 was “ignorant” of knowledge
management; Adviser 6 did not know the “right interpretation” of
knowledge management and Adviser 4 simply could not articulate an
understanding of knowledge management.

In contrast, Adviser 2, Manager 1 and Other 1 felt that knowledge
management was widely discussed. Adviser 2 was aware of
knowledge management via their project work, although did not
know of a specific knowledge management strategy. Other 1 and
Manager 2 identified a lack of explicit strategy, but indicated that
knowledge management was discussed (Manager 1) and that HRM
management was trying to ensure that information sharing occurred
in the HRM department (Other 1).

A formal knowledge management strategy was not identified within
the HRM department. Without a formal knowledge management
strategy, the management of and between knowledge resources and
processors is haphazard.

2.2.2 Technology Coordination
As the focus in this study has been on the use of technology to
support knowledge management, the issues relating to coordination
will be discussed focusing on technological problems.

The HRM department uses a file server and the HRM information
system (PeopleSoft) to manage electronic resources. The file sever
is used to store all electronic documents. Many people within the
HRM department find the HRM server (a knowledge resources)
difficult to use. The structure of the file server indicates some
coordination of knowledge resources, being divided into confidential
and open sections. The open sections were then divided according
to the section and groups of the HRM department. Each of the
groups (Arts, Business, Science and Administration) has their own
directory and structure for storing their electronic resources (see section 3.1 of chapter 5 for more discussion). Many interviewees indicated that there were differences in the way groups stored information on the server (for example, Advisers 1, 2 and 3; see section 3.1 of chapter 5 for more discussion). Other interviewees indicated that problems with currency and duplication of files occurred (for example, Adviser 4 and Other 2).

Attempts have been made to standardise the server (Other 2 and Adviser 7; see discussion in section 3.1 of Chapter 5), indicating that some coordination had been attempted. However, efforts to coordinate use of the server had failed because of poor communication or lack of consensus on appropriate protocol (Other 2, Adviser 7, Officer 1) and frustrations with the server structure remained. Hence the HRM file server represents a challenge for the HRM department in the area of coordination. The lack of coordination is negatively influencing knowledge management within the department. The lack of coordination also has implications for the influence of control over quality and quantity of electronic resources.

2.2.3 Information Systems Coordination
The HRM information system shows promising signs of coordination within the department. Several interviewees thought that the PeopleSoft system had led to better information management within the department (see section 3.2 of Chapter 5 for more discussion). However, issues with reporting using PeopleSoft and general ease of use of the system were still issues for the majority of HRM department users. The HRM information system can be seen as both a positive and negative influence on departmental knowledge management.

The perceptions of knowledge and knowledge management show many sources, action and objectives for knowledge management
(see Chapter 5 for more discussion of the perceptions of knowledge management). The wide variation in the perception of knowledge and knowledge management is consistent with the lack of coordination of and between resources and activities. If a coordinated approach to knowledge management was in place a more refined set of sources, actions and objectives may have been identified from interviews in the HRM department.

2.2.4 Incentives
The coordination of knowledge management may be enhanced through the use of incentives or rewards to participate (Holsapple and Joshi, 2004). However, as no knowledge management strategy was in place, no formal incentives to participate in departmental knowledge management were provided. Manager 1 acknowledged that no formal incentives were provided, but saw participation in knowledge management as a developmental activity.

Similarly, Adviser 2 thought that knowledge management participation was encouraged via general support for training and development. Others thought that incentives to participate in knowledge management were to avoid negative consequences, such as not getting things wrong (Adviser 6), maintaining relative harmony in the workplace (Other 1) and being a good corporate citizen (Adviser 1). Officer 1 participated in knowledge management to make their own work easier, and to make future uses of their work easier.

The lack of formal incentives to participate in knowledge management is a negative influence on knowledge management.

2.2.5 Conclusion
Overall, coordination is a negative influence on knowledge management within the HRM department, as there is no guiding strategy in place. Interviewees provided no evidence of a planned knowledge management strategy, and indicated that there was
limited discussion of the concept of knowledge management. The HRM file server is poorly coordinated, although the HRM information system has the potential to increase the coordination of knowledge management efforts. The lack of coordination of management efforts for knowledge management leads to limitations in the control and measurement of knowledge management, as discussed in the next section.

2.3 Control
The third management influence on knowledge management is how the quality and quantity of knowledge resources and processors are controlled, and how knowledge resources and processors are protected against loss (Holsapple and Joshi, 2004). The degree of control over knowledge resources and processes is closely related to the final management influence on knowledge management, Measurement (discussed in section 1.4).

2.3.1 Indicators of Poor Control
An indicator of control over knowledge resources would be the clear identification of the knowledge resources and activities within the department. As discussed in Chapter 5, interviewees were asked to identify the sources of information and knowledge used within the HRM department. The Elements of knowledge management diagram (illustrated in figure 9, Chapter 6) includes many difference sources of knowledge and information as well as many different actions that make use of the sources. Without clear identification of knowledge resources and activities, controlling the quality or evaluating (measuring) the resources and activities is problematic.

Employees of the HRM department hold a large amount of the information and knowledge needed to carry out the department's work. The extensive use of personal networks to source information and knowledge (or to determine the location of information and knowledge) is discussed in depth in chapter 5. The HRM department
relies on a low staff turnover to maintain personal information networks between employees. The department lacks the ability to protect against the loss of information and knowledge caused by staff leaving the department. Heavy reliance on low staff turnover is a negative aspect of control influencing knowledge management, because the department has limited control over the movements of its employees.

2.3.2 Improvement Attempts

In an attempt to counter the lack of control over staff loss the HRM department has begun to realise that staff, especially those that have been in the department for a long period of time, hold valuable information and knowledge. Attempts are underway to try to capture the information and knowledge of long-term employees before they retire (see section 4.3.1 of Chapter 5 for discussion).

As discussed earlier, the HRM server and information system have negative and positive coordination influences on knowledge management. Many of the negative coordination influences also contribute to negative control influences over knowledge management. For example, problems with the structure of the server indicated the lack of a coordinated approach to knowledge management (see section 1.2 above). The lack of structure to the HRM server makes it hard to locate knowledge resources, increasing the time, effort and difficulty involved in assessing knowledge resource quality or minimising duplication. Conversely, the division of the server into confidential and general sections is a clear attempt at protecting sensitive knowledge resources.

The HRM information system increases the control over knowledge resources by providing a standard point of entry for all HRM users. The information system attempts to ensure that correct and sufficient knowledge resources are delivered to HRM users. The system also protects against unauthorised access. The HRM
information system represents a significant advance from the information server in terms of control over knowledge resources.

2.3.3 Conclusion
The poor identification of knowledge resources and the HRM information server indicate little control over the resources used in knowledge management. A major risk for the HRM department is that employees take much of their knowledge when they leave the department. To offset the lack of control over employees, some strategies have been introduced to attempt to capture staff knowledge.

Positive control influences on knowledge management stem from the HRM information system. The information system controls data access and entry for HRM tasks and provides a standard set of data to users. Considering that the introduction of the HRM information system is relatively recent, the control influence in the department seems to be improving with time.

2.4 Measurement
The measurement influence on knowledge management involves the evaluation of resources, processors, activities and the overall knowledge management effort (Holsapple and Joshi, 2000; 2004). The ways in which the department values its resources and employees was explored in the research interviews.

There is no formal review process defined for all knowledge resources. Since the department's knowledge resources are not clearly defined (see earlier section on Control and also Chapter 6 for more discussion) the lack of a formal review process is not unexpected. The department does have a formal approach to the evaluation of some knowledge resources, although others are neglected.
The HRM department has a formal review process for policies, where each policy is reviewed every two to three years (Officer 2). The department also reviews the services it provides against client expectations (Other 2). Job aides are used to detail processes that should be followed and are kept current (Officer 3). Group section employees carry out regular self-audits to ensure the data in the HRM information system is accurate (Adviser 6). Adviser 2 thought that the department was aware of most of the quality weaknesses in resources such as policies and processors and was trying to address the weaknesses within time and resource constraints.

However, other knowledge resources are only evaluated if errors are found (Manager 4) or are based on client complaints and feedback (Adviser 7, Officer 1 and Other 1). Advisers 1, 3, and 5 and Manager 2 did not know of any attempts to assess resources for quality. Adviser 8 applied their own judgement as to the quality of resources available within the department.

Another aspect of the measurement influence on knowledge management is whether employees feel that they are valued within their workplace, and how that valuation is shown (Holsapple and Joshi, 2000). Most interviewees felt that the department valued their knowledge (Adviser 4 and 6, Managers 2 and 3 and Other 2), at least within certain groups (Adviser 2 and 5), through their clients (Officer 3 and Other 2) or by co-workers asking for advice (Adviser 7, Manager 4 and Officer 4).

Others felt that employees were valued when they left the department (Adviser 1 and 3). As discussed in section 2.3.1 of Chapter 5, some attempts were currently being undertaken to capture knowledge when employees retired or left the department (Manager 3). Despite the majority of employees feeling that they were valued, Manager 2 thought that the department had poor
systems in place to show that employees and their knowledge was valued.

No formal approach was in place to evaluate the overall knowledge management efforts within the department, which is not surprising given the lack of a knowledge management strategy in the department (see section 1.2.1 of this chapter for more discussion about knowledge management strategy). The lack of evaluation of knowledge resources, employees and knowledge management efforts stems from problems with the leadership, coordination and control influences on knowledge management.

2.5 Conclusion: Management Influences

The four factors of management influence on knowledge management (leadership, coordination, control and measurement) show positive and negative influences on knowledge management within the HRM department. Many of the negative influences stem from the absence of a planned approach to knowledge management, as discussed in section 1.2 of this chapter. For example, measurement is made difficult because measurement goals should be identified as part of a planned approach to knowledge management. Control over knowledge management is also limited because without a knowledge management strategy, key knowledge resources are not identified. Adoption of a strategy would also lead to better management commitment to and role models for knowledge management.

However, several factors also provided positive influences on knowledge management. The open, sharing culture of the HRM department is a ripe environment for knowledge management concepts to be introduced to. The loss of information and knowledge arising from staff leaving the department has been identified and some strategies introduced to combat information and
knowledge loss. Reviews of knowledge resources, although informal, are occurring.

Technology used in the department had both positive and negative influences on knowledge management. The HRM file server was a negative influence because of the lack of coordination, control and measurement applied to the server. However, the HRM information system showed positive influences on knowledge management in the department in the way data was coordinated and controlled. The system also has latent potential that the department could harness in its knowledge management activities.

Similarly, management influences have both positive and negative effects on knowledge management. The mixture of influences indicates that the administration of knowledge management requires reviewing for effective knowledge management to occur. At a minimum, a knowledge management strategy is needed to guide knowledge management efforts in the HRM department, to allow systematic efforts towards knowledge management. Effective identification and locations of knowledge resources (including the HRM information server) is also required so that the sharing and use of information and knowledge is systematic and increases organisational performance.

3 Resource Influences
An organisation’s resources are one of the three influences on knowledge management identified by Holsapple and Joshi (2000; 2002; 2004). The organisational resources available for use in knowledge management influence the process and outcomes of knowledge management.

Holsapple and Joshi identify four categories of organisational resources – knowledge resources, financial resources, human resources and material resources (Holsapple and Joshi, 2000; 2002; 2004). In this section, each of the influences that each resource
category has on knowledge management within the HRM department is discussed.

### 3.1 Knowledge Resource Influences

Knowledge resources are the “raw materials” for knowledge activities (Holsapple & Joshi 2000) and are available for manipulation (Holsapple & Joshi 2004). Holsapple and Joshi identify two categories that contain six types of knowledge resources that influence knowledge management (Holsapple & Joshi 2001). The six types of knowledge resources are participant’s knowledge, artefacts, infrastructure, culture, strategy and purpose. A description of the knowledge resources is given in detail in Chapter 4, Frameworks; only a brief description is given here.

Knowledge resources may exist independently of an organisation (content), or their existence may be dependent on an organisation (schema) (Holsapple and Joshi, 2001). Infrastructure, culture, strategy and purpose are scheme knowledge resources; participant’s knowledge and artefacts are content knowledge resources.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>“knowledge of the reason for which the organisation exists” (Holsapple and Joshi, 2000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategy</td>
<td>“knowledge about what to do in order to achieve organisational purpose in an effective manner” (Holsapple and Joshi, 2000)</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>“knowledge that is used to structure an organisation’s participants” (Holsapple and Joshi, 2000)</td>
</tr>
<tr>
<td>Culture</td>
<td>“values, principles, norms, and unwritten rules and procedures” (Holsapple and Joshi, 2000)</td>
</tr>
<tr>
<td>Participant’s Knowledge</td>
<td>“knowledge that a participant brings to bear in the execution of its role within an organisation” (Holsapple and Joshi, 2000)</td>
</tr>
<tr>
<td>Artifacts</td>
<td>“an object that represents knowledge” (Holsapple and Joshi, 2000)</td>
</tr>
</tbody>
</table>

Table 16: Knowledge Resources (Holsapple and Joshi, 2000)

The focus of this section is how knowledge resources (of the types detailed above) influence knowledge management efforts in the HRM department. However, many of the knowledge resources have been considered in other sections detailing influences on knowledge management.
management. For example, the participant’s knowledge resource has been discussed in section 3.3 of this chapter, Human Resources Influences and so will not be re-considered in this section. Similarly, the culture of the HRM department was addressed in the section on human resource influences and will not be further discussed here. The Material resource influence section discusses technology artefacts (technology support for knowledge management is the focus of this study), and so the artefact knowledge resources will also not be revisited in this section.

In this section, the focus will be on how the HRM department’s purpose, strategy and infrastructure knowledge resources influence knowledge management.

3.1.1 Knowledge Resources
The stated purpose of the HRM department is to assist the university to achieve its goal. The HRM department provides a strategic approach to the management of the university’s employees, as well as undertaking the day-to-day human resources administration functions.

The duality in the purpose of the HRM department is reflected in the infrastructure of the department. The Central section works on HRM projects (providing a strategic approach to management of people) whereas the Group section interacts directly with HRM clients (providing human resource administration functions). As discussed in Chapter 5, the separation of strategic and functional activities of the department has led to differences in the way that knowledge is reused by Central and Group section employees. The Central section is a shared work production knowledge reuse situation, whereas the Group section is a shared work producer knowledge reuse situation (see section 4, Chapter 5 for more discussion).

The strategy, purpose and infrastructure reflected in the knowledge reuse situations have a number of influences on KM.
3.1.1.1 Knowledge Reuse Influences

The differences between shared work producers and practitioners influences knowledge management because each situation will have different needs for knowledge reuse. Because the HRM department does not have a homogenous or dominant knowledge reuse situation knowledge management efforts need to be focused to the different needs to producers and practitioners.

Markus (2001) makes recommendations for successful knowledge reuse in different reuse situations. Shared work producers are people working on common projects who reuse their own knowledge (Markus, 2001). Central section employees are shared work producers (see Chapter 5 section 4.1 for discussion). Successful knowledge reuse of producers involves:

- Maintaining context in the record
- Providing support of indexing and searching records and
- Requiring documentation of rationale knowledge (Why did we make this decision?)
- Do not provide public access to shared work producer's repositories (Markus, 2001)

Shared work practitioners are “people doing similar work in different settings; producers of knowledge for each other’s use” (Markus, 2001). Central section employees are shared work producers (see Chapter 5 section 4.2 for discussion). To promote successful knowledge reuse by shared work practitioners, Markus suggests:

- Repackaging knowledge to provide quality assurances, currency, indexing and searching capabilities
- De-contextualising knowledge, but providing context information with the content
- Provision of packaged expertise and access to experts
• Provision of incentives for contribution and reuse
• “Pushing” knowledge to appropriate recipients (Markus, 2001)

In addition, the relationship between the Central and Group sections is often an expertise-seeking novice knowledge reuse situation, which provides additional challenges for successful knowledge reuse. Expertise-seeking novices require de-contextualised knowledge that has been translated into terminology that novices can understand and search.

The needs of the shared work producers and practitioners and expertise-seeking novices have some elements that overlap. For example, Markus suggests that contextual information should be stored with content information in repositories (2001). Introduction (and enforcement of) information storage guidelines would benefit all knowledge reusers in the HRM department. Ideally, an individual or group would also be responsible for indexing, sorting and maintaining the context and content information. The enforcement of information storage guidelines and the ownership of information repositories is important as previous efforts to standardise information storage efforts have failed due to lack of communication and enforcement of standards (see Chapter 5, section 3). The storage of contextual information would be constrained by environmental influences such as government legislation (see section 4.2, Constraining Influences for more discussion).

The three knowledge reuse situations also have distinct differences, for example, the protection of shared work producer’s repositories from access by other knowledge reusers. However, providing three systems (one for each group of reusers within the department) is impractical.

An alternative to providing different systems to each group of reusers could be to provide different interfaces to a central system for knowledge reusers to access HRM files. By restricting access by
reuser group, the files of shared work producers could be kept private, and the contextual information shown with content information could be tailored to specific knowledge reuser situations.

The purpose, strategy and infrastructure of the HRM department influence knowledge management because they create distinct knowledge reuse situations in the HRM department. At least three knowledge reuse situations exist in the department, and each situation has different knowledge management needs. Technology support for knowledge management within the HRM department therefore has to be multifaceted, for example, providing different reusers with appropriate access to content and context information. New strategies to information storage are also needed to ensure that content and contextual information is stored.

### 3.2 Financial Resource Influences

Financial resources are “an entity’s financial assets” (Holsapple and Joshi, 2004). Financial resources limit what can be “expended on knowledge activities” (Holsapple and Joshi, 2000). Financial resources influence how much can be spent on knowledge management.

The availability of financial resources for knowledge management was not explored in interviews, since most participants were not in positions that would give approval for spending on knowledge management efforts. However, Advisers 1 and 2 thought that funding for knowledge management efforts would be provided if a business case and outcomes were made.

Several interviewees thought that financial benefits would occur if knowledge management efforts were introduced. Adviser 1 and Officer 2 thought financial benefits from knowledge management would be increased staff skills and staff development. Advisers 4 and 5 thought that knowledge management would reduce staff turnover. Increased productivity (Manager 4), staff availability
(Other 2), the reduction in repetitive actions (Adviser 5) and more time (Advisers 1 and 2) were also seen as benefits of knowledge management.

Because interviewees were not in positions to comment on potential funding of knowledge management efforts, the financial amount available to be expended (and the subsequent influence on knowledge management) cannot be discussed. However, from the comments made by interviewees it can be inferred that problems with productivity, repetitive actions and a general lack of time exist within the HRM department. These problems could form the basis of a business case for funding of knowledge management efforts.

### 3.3 Human Resource Influences

Holsapple and Joshi propose that skills used in knowledge activities may either be human or computer based (2000). When people hold the skills used in activities, they are human resources. The skills of people participating in knowledge activities are considered to be human resources (Holsapple and Joshi, 2004). The skills of employees influence knowledge management because employee’s skill are used in knowledge activities.

#### 3.3.1 HRM Skills

This section focuses on the question, do employees of the HRM department have the skills to manipulate knowledge? Each interviewee was asked if they felt they had the skills to manipulate knowledge in the HRM department, and what were most valuable or important skills they had.

Nearly all interviewees (17) felt they had the skills needed to manipulate knowledge in the HRM department. Adviser 8 and Officer 2 were new employees of the HRM department (employed for six months and one year respectively) and felt that they were still learning the skills needed to manipulate knowledge.
When asked about the most important skill they had, most HRM employees nominated the networks of people and access to people with information and knowledge. Skills such as communicating with (Adviser 7) and engaging people (Manager 1), asking the right questions (Manager 4) and knowing who to ask (Adviser 2, Managers 3 and 4) were important skills for manipulating knowledge. The importance of networking and people-based skills to HRM employees is a reflection of the importance of personal networks for finding information within the HRM department, as discussed in Chapter 5.

Networking and people skills are important in the HRM department because most of the department’s knowledge resources reside with its employees. The HRM department’s electronic repositories (the file server and information system) do not provide access to sufficient knowledge resources for day to day work in the HRM department, and hence personal networks are used to source extra information (see chapter 5, section 2.3 for discussion on the interaction within the HRM department for advice). The networking and people skills of HRM employees influence knowledge management because they maintain the status quo (information residing in people) and marginalise the role of information technology. The problems with the implementation and adoption of the PeopleSoft information system (see chapter 5, section 3; also (Beekhuyzen, 2001)) highlight way in which a system that users acknowledge is helpful may be underutilised.

Because personal networks are needed to access knowledge resources, effort is put into maintaining and developing networks. Skills to access electronic information (e.g. searching skills, PeopleSoft training) are not developed, which in turn reinforces the importance of personal networks. Hence the perception of networking and personal skills as highly important is a negative influence on knowledge management within the HRM department, as
skills that would allow electronic resources to be used are neglected in favour of maintaining the current situation where knowledge resources are accessed through personal networks.

3.4 Material Resource Influences

Some knowledge activities may be performed by computer-based participants (distinct from human resources) (Holsapple and Joshi, 2000). Material resources are, “capabilities of ... material assets” (Holsapple and Joshi, 2004).

The technology used in the HRM department has been discussed in Chapter 5, section 3 (Technology Use). Technology use has also been linked to knowledge reuse in section 4 of chapter 5, and has been touched on in the discussion of management influences. A brief discussion of the material resource influences will be given in this section. The discussion of material resources will focus on the HRM server and the HRM information system, PeopleSoft.

The HRM server is generally considered to be difficult to use. There is no convention for where, what or how to store information on the server; hence, different sections have different structures for storing similar information on the server. Generally, the HRM officers are the most comfortable with the server, the advisers less comfortable and the managers critical of the HRM server.

Issues with the HRM server influence knowledge management because of the capabilities the HRM server doesn’t provide. For example, the HRM server does not provide easy access to information. Currency and duplication of electronic files stored on the server means that correct knowledge resources are not being provided to knowledge management efforts. The current HRM file server therefore limits knowledge management efforts.

The HRM information system, PeopleSoft, is widely disliked by HRM employees. The system is considered complicated, especially when
performing non-routine tasks. HRM officers are the main users of the system. Central section employees are more likely to view the system positively, pointing to better information management within the department since the system was introduced. However, both Central and Group employees highlighted the limited reporting functions of the system.

The HRM information system provides positive influences on knowledge management efforts, because of the increased information management the system has bought to the department. The system has also centralised and computerised many HRM files, increasing the amount of information that is available to HRM staff. However, the system is not widely used so the increase in information available has not translated into better reporting (although some faults with reporting are limits of the system). The bad implementation experience of the PeopleSoft introduction has also made HRM employees wary of new technologies.

Overall, the current technology provided within the HRM department is negatively influencing knowledge management. Knowledge management within the HRM department may be enhanced via work on existing material resources. For example, consistent naming of files and directory structures on the HRM server would allow knowledge resources to be easily found and used. Increased reporting capabilities within the PeopleSoft system would encourage greater use (at all levels of the department) of the information stored in the system. The introduction of new technologies to support knowledge management is not needed, since the existing technologies have scope to be better leveraged in knowledge management efforts. Any new technologies would likely face strong resistance from a department that already perceives a lack of time to undertake their work (see section 3.2 of this chapter, Financial Resource Influences).
3.5 Conclusion – Resource Influences

The HRM department’s resources create an interesting context for knowledge management. The financial resources appear to have the least influence on knowledge management because currently no knowledge management strategy or funding is in place. This study has not examined financial resources in depth, so difference results could emerge from further investigation of the influence.

However, most interviewees thought that funding for knowledge management would be provided if a business case for knowledge management were made. In contrast, the knowledge, material and human resources have substantial negative influences on knowledge management within the HRM department.

As discussed in Chapter 5, work in the HRM department relies heavily on personal networks for sourcing information. Employees rely on developed personal skills for finding information (electronic or otherwise) in the department. Because personal networks and people skills are so important to HRM employees, skills to allow use or searching of electronic records are neglected. By neglecting technology skills, the personal networks and people skills of HRM employees become even more important, leading to a catch-22 situation where the status quo of reliance of personal networks is maintained.

The purpose, strategy and infrastructure (knowledge resources) of the HRM department also have an important impact on knowledge management. The purpose, strategy and infrastructure of the department is twofold. The strategic and functional activities of the department are divided between the Central (strategic) and Group (functional) sections, creating three distinct knowledge reuse situations.

The Central section employees are characterised as shared work producers; the Group section employees are characterised as shared
work practitioners and interaction between the Group and Central sections are expertise-seeking novice knowledge reuse situations. The needs of all three knowledge reuse situations need to be considered in the design of a knowledge management strategy.

Ideally, a knowledge management strategy would provide each knowledge reuse situation with a different interface to the HRM department’s electronic files, with appropriate content and context shown to members of each knowledge reuse situation. New strategies for storing and structuring electronic files will also be needed to provide technological support for knowledge management in the manner outlined above. Changes to the way technology is used in the HRM department are also necessary if technology is to positively influence knowledge management. The technology in the department is widely disliked and underutilised, and at present is not ideal for supporting knowledge management. Improving file storage and reporting capabilities of the current systems in the department is needed to allow technology to effectively support knowledge management.

4 Environmental Influences
Environmental influences are external factors that affect knowledge management (Holsapple & Joshi, 2000). Holsapple and Joshi used knowledge management literature to identify environmental influences and then validated the influences (as part of a wider model) using a Delphi method (Holsapple and Joshi, 2000). Holsapple and Joshi identified six (6) environmental influences; Fashion, markets, competitors, time, technology, and the Government, Economic, Political, Social, and Educational (GEPSE) climate. Organisations have little or no control over environmental resources (Holsapple & Joshi, 2000; 2004), unlike Managerial and Resource influences. Table 17 below compares the aspects mentioned by interviewees when asked about external influences on
knowledge management, the equivalent influence from Holsapple and Joshi’s work (2000) and who identified the influence.

<table>
<thead>
<tr>
<th>Influence</th>
<th>Holsapple and Joshi Equivalent Influence</th>
<th>Interviewees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology (Increases in availability or functionality)</td>
<td>Technology</td>
<td>Officer 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advisers 1, 5, 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Managers 1, 2, 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others 1, 2</td>
</tr>
<tr>
<td>Freedom of Information (FOI), Policy and Legislative requirements</td>
<td>GEPSE Climate</td>
<td>Officer 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Advisers 4, 6, 7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manager 3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Others 2, 3</td>
</tr>
<tr>
<td>Increased competition in the Higher Education Sector (HES)</td>
<td>Competitors</td>
<td>Adviser 2, 4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other 2</td>
</tr>
<tr>
<td>Expectations and Feedback from clients</td>
<td>Fashion</td>
<td>Officer 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manager 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other 3</td>
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<tr>
<td></td>
<td></td>
<td>Officer 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other 1</td>
</tr>
<tr>
<td>Perception of knowledge management as a “fad”</td>
<td>Fashion</td>
<td>Manager 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other 2</td>
</tr>
<tr>
<td>New HRM director/ Previous experiences with knowledge management</td>
<td></td>
<td>Officer 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Manager 1</td>
</tr>
</tbody>
</table>

Table 17: Environmental Influences on Knowledge Management

The environmental influences will be discussed as either enabling or constraining knowledge management within the HRM department. Enabling influences are external factors such as improvements in technology, that act as incentives for the department to consider knowledge management. Constraining influences are factors such as legislation that act as disincentives for considering knowledge management. In the next two sections the factors identified will be discussed as enabling or constraining influences on knowledge management.
4.1 Enabling Influences

Enabling influences are factors encouraging the HRM department to consider knowledge management. Enabling influences include technology, increased competition, expectations and feedback from clients and previous experiences with knowledge management.

Improvements in technology and the access that technology allows to information are positive environmental influences on knowledge management within the HRM department. HRM employees identified technology as a positive environmental influence because of the greater access (Advisers 1 and 7) faster access (Other 2) and depth of access (Other 1) afforded by improvements in technology. The HRM information system, PeopleSoft, is also seen as a positive influence on knowledge management because the functionality of the PeopleSoft system has the potential to improve knowledge management within the HRM department (Officer 1, Manager 1) (see also Resource Influences). Manager 2 felt that the introduction of the PeopleSoft system had led to greater knowledge sharing between employees. The PeopleSoft software is considered an external influence because the processes that the PeopleSoft software enforces on organisations are based on pre-determined industry best practice.

Increased competition in the Higher Education Sector (HES) is also an influence on knowledge management within the HRM department. As government polices have changed the HES, the sector has been forced to become more competitive and fiscally responsible. Other 2 and Advisers 2 and 4 saw the increased pressure of competition in the HES as an external influence on knowledge management.

Expectations of and feedback from clients of the HRM department is another external pressure leading to the consideration of knowledge management (Officer 1, Other 1). Other 3 felt that the department was continuously trying to improve, and therefore knowledge
management was being considered as a continuous improvement activity.

4.1.1 Exposure: An Additional Enabling Influence
Previous experiences with knowledge management, or exposure, was an additional external influence not considered by Holsapple and Joshi (2000). Exposure to knowledge management, either in another organisation or from training, has a positive influence on KM in the HRM department.

Officer 1 was new to the HRM department and was very conscious of leaving good records because they expected to leave the department when their contract finished. Officer 1 had previously worked in an organisation where a knowledge management strategy was in place, and their knowledge of another knowledge management strategy influenced the information Officer 1 stored on case files.

Manager 1 attributed recent changes in the HRM department (including greater knowledge sharing) to the new HRM director and the new ideas the director had introduced to the organisation. This included the wider sharing of knowledge within the department. Manager 1 was also referred to as the “knowledge management director”, as they had attended a conference on knowledge management and had attempted to introduce some KM concepts to the department.

As knowledge management has become accepted as a management concept, previous experiences with knowledge management will influence the way in which knowledge management is introduced and conducted in organisations. Previous experience or exposure to knowledge management may be an important factor that could have a positive influence on knowledge management, as occurred within the HRM department. However, exposure to knowledge management could also have a negative impact. Experiences in the HRM department show that previous experiences should be
considered when knowledge management strategies are being introduced or refined.

Exposure to knowledge management had a positive influence in the case organisation, but the potential value and benefits of exposure had not been exploited in the HRM department. The department lacked a strategy to expose more staff to knowledge management through training or other activities. By failing to realise the value of exposing employees to knowledge management, the department missed an ideal opportunity to improve its knowledge management activities.

Improvements in technology, changes in the HES and increased exposure to knowledge management are environmental influences that act as incentives for the HRM department to consider knowledge management. Unfortunately, there are also environmental influences that act as disincentives to consider knowledge management. The constraining influences will be discussed in the next section.

4.2 Constraining Influences

Constraining influences on knowledge management act as disincentives for the department to consider knowledge management. Freedom of information legislation and poor perception of knowledge management are the major constraining influences on knowledge management identified from interviews.

As a government agency, the HRM department’s records are publicly accessible under Freedom of Information (FOI) legislation. The FOI act recognises that it is, “the right of the community to have access to information held by the … government” (Queensland Government, 1992). Access to university documents is gained through a request to the university administration. Officer 1, Advisers 4, 6, and 7, Manager 3 and Others 2 and 3 all saw FOI or privacy legislation as a
external influence on knowledge management within the HRM department.

Because any of the HRM department’s documents can be accessed by FOI requests, the HRM files contain the minimum information associated with each issue. Contextual information (circumstances surrounding an issue) is often not described, or is poorly described. Contextual information about issues is held by HRM employees, and is reflected in the importance of personal networks in the department (see chapter 5, section 2 for discussion). Markuses (2001) recommendations for promoting knowledge reuse by storing context and content in electronic files is problematic for the HRM department, as contextual information is often considered inappropriate due to FOI legislation. Storage of contextual information in files would also require changes to current file storage processes within the HRM department. Hence the FOI legislation is considered a negative influence on knowledge management.

Electronic files that do not provide contextual information have implications for shared work producers and shared work practitioners (see chapter 5 for discussion of knowledge reuse situations). Following Markuses (2001) recommendations, shared work producers require context to be stored in their records to promote successful knowledge reuse. FOI legislation limits the storage of context in records and also prevents stored information from remaining private, another recommendation of Markus (2001). Shared work practitioners should have access to “context information along with the content” (Markus, 2001). Again, the limited contextual information stored by the HRM department negatively influences knowledge reuse by shared work practitioners.

Another influence on knowledge management is the perception that knowledge management is another fad (Manager 2, Other 2). Seeing knowledge management as a trend that will come and go
reduces the chances of HRM employees taking knowledge management initiatives seriously. Other 2 felt that most people in the HRM department agree with the ideas behind knowledge management, but were sceptical of the concept of knowledge management; “not [person] and their KM bit. ... It's a bit of a fad thing.” Similarly, Manager 2 thought knowledge management was “one of those buzz terms that's doing the rounds currently”.

Manager 4 felt that closely associating knowledge management and technology would be met with scepticism due to the recent PeopleSoft implementation. Manager 4 felt that the PeopleSoft implementation did not meet many of the sales promises, and people within the department are now wary of claims about what technology can offer.

FOI legislation, perception of knowledge management as a ‘fad’ and distrust of vendor’s promises about technology are all negative environmental influences on knowledge management. Knowledge management needs to be carefully introduced into the HRM department to avoid being seen as another “fad”, and knowledge management strategies being relegated in importance relative to other organisational initiatives.

4.3 Conclusion: Environmental Influences
The environmental influences on knowledge management have enabling and constraining impacts for knowledge management within the HRM department. A major constraint on knowledge management is the Freedom Of Information (FOI) legislation that allows public access to HRM files. Consequently, the HRM files contain minimal information on issues and cases. The FOI legislation acts as a disincentive for contextual information about cases to be added to files, limiting the usefulness of files for shared work practitioners and shared work producers. The issues associated with storing contextual information in publicly accessible files is a
problematic element in Markuses (2001) recommendations for promoting knowledge reuse, at least within Australian public organisations.

Promisingly, not all environmental influences are constraints on the practice of knowledge management. Increases in the functionality of technology have provided better access to and availability of information. New technologies (such as the PeopleSoft system) provide new functionality that allows the department to manage information better. Feedback from clients is also encouraging the department to consider knowledge management.

Employee’s previous experiences and exposure to knowledge management concepts are another enabling influence on knowledge management. Previous exposure to knowledge management is encouraging Officer 1 to leave complete records of their work. Manager 1 attributes some of the increased consideration of knowledge management to the new ideas bought in by the new HRM director.

The environmental influences show that knowledge management initiatives in the HRM department need to consider legislative requirements (such as freedom of information legislation) and the impact that legislation has on using technology to support knowledge management. Some technology allows greater access and manipulation of information with legislative frameworks (for example, the PeopleSoft system’s manipulation of statistical data). However, the freedom of information legislation makes storing detailed information about HRM issues and cases risky for the HRM department.

4.3.1 Exposure
Previous exposure to knowledge management was identified as an additional environmental influence on knowledge management. It may be possible for exposure to be a negative influences; however,
in the HRM department it was a positive influence, although the department was yet to capitalise on its potential to improve knowledge management activities.

Exposure not identified by Holsapple and Joshi's work (2000; 2002; 2004), perhaps because the concept and use of knowledge management was not widespread when Holsapple and Joshi developed their model. However now knowledge management is a common concept that many people have been exposed to, it may be identified more often as an influence on knowledge management.

Previous exposure to knowledge management concepts and use can be especially important if consideration of knowledge management is still in the planning stages. Previous exposure to or use of knowledge management may significantly impact new knowledge management initiatives – the full impact of exposure will need to be explored in future research.

5 Chapter Conclusion
Analysis of the context of the HRM department shows that there are many influences on knowledge management within the HRM department. Knowledge management within the HRM department is influenced by a number of managerial, resource and environmental influences. These influences, taken from Holsapple and Joshi's (2000; 2002; 2004) framework show the complex role of technology in the department's knowledge management efforts. Examination of the influences on knowledge management have shown that different aspects of the department and its environment will impact on any knowledge management strategies that are introduced to the department.

5.1 Influences on Knowledge Management
Examination of the managerial influences on knowledge management shows that the department, lacking an explicit
knowledge management strategy, lack appropriate controls, coordination, measurements and leadership. However, the department has identified the need for knowledge management due to issues such as knowledge loss from staff turnover.

The HRM department’s information system has the potential to influence knowledge management, as it offers better coordination and control over organisational data. However, the HRM file server hinders many knowledge management efforts, as it does not allow easy or organised access to electronic records. Hence technology is predominately a negative management influence on knowledge management. The negative influence of technology is continued through the resource and environmental influences.

The resource influences show that there are on-going barriers to improving knowledge management within the department. The HRM file server and information system are not used to support knowledge management efforts and negatively influence attempts to improve knowledge management. However, both technologies have the potential to be a positive influence on knowledge management; for example, improving the structure of the file server would allow better access to information, promoting knowledge management. Re-assessing the reporting capabilities of the HRM information system would give the department better access to current information and lead to improved decision-making and planning.

Changing the influence of the file server and information system is problematic because of the highly valued and positively perceived role of personal networks and people skills within the department. Staff maintain and attempt to further develop these skills, often at the expense of improving their skills relating to the file server or the information system. For example, when staff need access to or want to share information, they will use their personal networks, and
rarely supplement their activities by storing or searching information in a structured way on the server.

If technology is to be positioned as a positive influence on knowledge management, both the way that technology is used and the perceptions of HRM staff will need to be changed.

The existence of three knowledge reuse situations (shared work producers, shared work practitioners and expertise-seeking novices) in the HRM department means that technology support for knowledge management will be more complex than if just one situation existed. At times the three knowledge reuse situations have conflicting needs; for example, Markus (2001) suggests that records for shared work practitioners and producers should contain content and contextual information. However, expertise-seeking novices require de-contextualised records with an option for later re-contextualisation. This was supported by the different perceptions of the file server and information system, discussed in Chapter 6.

Developing separate systems to support each knowledge reuse situation is not likely to occur. Instead, different interfaces for each situation could be used to tailor a centralised repository for the knowledge reuse situations in the HRM department.

Environmental influences are external impacts on an organisation. The Freedom of Information (FOI) legislation is a major influence on knowledge management. The FOI legislation allows public access to any of the records of the HRM department. Hence storing more than minimal information about issues is discouraged within the department. The FOI legislation is a major constraint on storing contextual information in records for later reuse.

### 5.2 The Addition of Exposure

Exposure, a new influence on knowledge management, was identified in the case organisation. Prior experiences with knowledge
management led several employees to promote the positive value of knowledge management, and to consciously carry out knowledge management activities.

Exposure to knowledge management could also be a negative influence, although this was not the case in the HRM department. However, the HRM department was yet to realise the value of knowledge management exposure and had not implemented training or other activities for their staff in an effort to promote knowledge management.

The interplay between managerial, resource and environmental influences on knowledge management show that technology is not simply a knowledge management tool that can be introduced to an organisation without consideration of the current context and work practices. For example, within the relatively small (approximately 70 staff) HRM department, the HRM file server has a negative influence over the way that information is shared because it cannot adequately support the knowledge-seeking needs of all groups within the organisation.

Improving this situation is complex, partly because three distinct knowledge reuse situation exist, and also because the current perceptions of the file server are negative and other knowledge sharing mechanisms are preferred. Changing the way that the file server and information system are used and perceived is a large undertaking if technology is to play a supporting role for knowledge management within the organisation. Contemporary information technology does not support the interoperability of systems to allow three distinct but linked systems to be developed to support each knowledge re-use situation, and hence technology should only be used as one part of a knowledge management strategy.

The negative influences that technology has on knowledge management within the department should be a warning to other
organisations considering implementing technology tools to support knowledge management. Unless the tools are positioned to support current work practices, they are unlikely to bring improvements to knowledge management.

Hence in answering the third research sub-question, How can technology be used to support knowledge management within the organisation, taking into consideration the organisational context? technology could be used to support knowledge management if it was integrated as a tool to support employee's personal networks and communications.

While applying Holsapple and Joshi's framework, there were many redundancies between the resource influences. The knowledge, human and material aspects of resource influences overlap and often explore the same technology or skills. The concept of material resources (knowledge manipulation skills of processors) was not meaningful within this study without considering the skills of HRM staff (human aspects), as processors were not perceived as autonomous agents. The knowledge resource aspect of resource influences could be applied instead of the human and material aspects, simplifying Holsapple and Joshi's model.
CHAPTER 8: CONCLUSIONS AND IMPLICATIONS

1 Introduction
This dissertation has explored the relationship between knowledge management and technology. Knowledge management is widely considered as important for organisations, as organisational knowledge can be the key to sustained competitive advantage (Grant 1991). In this research, knowledge management is seen as a systematic effort to share and use organisational knowledge within the organisation to improve the organisation’s performance.

Technology can provide support for knowledge management initiatives, although knowledge management activities can take place without technological support (for example as described by Skok 1999). The role of technology in knowledge management initiatives is a ripe area for investigation, as identified by Alavi and Leidner (2001).

A key premise informing this research has been that understanding the organisation is required before effective technology support for knowledge management can be planned. This view is in line with contemporary views that different organisational setting will lead to different views of organisational knowledge and knowledge management (such as proposed by Alavi and Leidner 2001).

Hence, to explore how technology can support knowledge management, this study has examined the way in which an organisation does work (Chapter 5), the perceptions of knowledge and knowledge management (Chapter 6) and the possible influences on any knowledge management initiatives (Chapter 7). Through examination of the work context, perceptions and organisational influences on knowledge management opportunities for technology to support knowledge management have been identified.
This study found that new technologies were not needed to support knowledge management within the organisation. For example, the current HRM file server was not used efficiently, and the HRM PeopleSoft system was not effectively used by advisers and managers to support their work and decision making. The emphasis in the HRM department on using personal networks for information gathering makes it unlikely that a new technology-based system would be accepted within the department. Instead, better use of the existing technology could provide effective knowledge management support to the different groups within the organisation.

In the rest of this chapter, the key research findings will be discussed, and the research evaluated. Implications for the theories used in this research will be given, and implications for practice will be highlighted. Limitations of the study will also be discussed before future research topics are briefly outlined.

2 Conclusions about the research problem

The broad question answered in this study was, What is the relationship between group context, technology and knowledge management? The study identified some of the factors in the organisational context that need to be considered to allow effective technology support for knowledge management. The current work practices, technology and the influences on knowledge management were explored in the case organisation, a HRM department of a large university.

This study confirmed that the work practices of an organisation impact knowledge management. Examination of the HRM department showed that distinct work groups existed, one to provide strategic HRM advice and the other to provide functional, day-to-day HRM advice. The two functions of the department produce different work and do not readily interact (see Chapter 5). The work groups
were categorised using Markuses (2001) knowledge reuse situations. Each situation has different needs for knowledge management, supporting Alavi and Leidner's (2001) proposition that different approaches to knowledge management are needed to deal with the diversity of knowledge types and differences.

Analysis of the influences on knowledge management showed that internal and external influences can impact the ways in which technology can be used to support knowledge management. Externally, the Freedom of Information legislation acts as a disincentive for storing more than minimal information about cases in files, as members of the public can access all records of the department. Within the department, the current pattern of limited use of technology is reinforced by the value placed on personal networks and people skills for accessing information. The lack of a clear knowledge management strategy means that goals for knowledge management are not identified, and hence clear opportunities for technology to support knowledge management are missing.

Examination of the perceptions of knowledge management by employees within the department show that the lack of a formal knowledge management strategy leads to unclear perceptions about knowledge sources, objectives, uses and methods. However based on the perceptions of knowledge and knowledge management, a useful framework for refining knowledge management concepts within an organisation was developed that will allow the department to explore future directions for knowledge management. This framework is presented in Chapter 6, Perceptions.

Examination of the perceptions of knowledge management concepts, the work practices and influences on knowledge management within the HRM department have shown that the context in which knowledge management takes place needs to be considered when
planning how to effectively use technology to support knowledge management. The strategy, purpose and infrastructure of the HRM department lead to distinct work practices that have different requirements for knowledge management. Further, the Freedom of Information legislation that applies to the HRM department limits the readiness of the department to store extensive information in electronic files. Technology support for knowledge management needs to consider the work practices and internal and external influences on knowledge management to be effective.

This research has also validated Markuses (2001) knowledge reuse model as a sense-making tool for analysing work done by a sub-group of a large organisation, and Holsapple and Joshi’s (1999, 2000, 2001, 2002a, 2002b, 2004) knowledge management influence model for understanding KM within a group.

The case study approach was a good method for gathering large amounts of data about the work and perceptions of the HRM department staff. However, the interrelated nature of the groups context, perceptions and technology use made it difficult to address the research sub-questions in a linear manner.

3 Evaluation of Research
Klein and Myers (1999) work on evaluating field studies in information systems has been used below to evaluate the research reported in this dissertation. Klein and Myers suggest the following principles for interpretive field research:

- The hermeneutic circle: iteration between the interdependent meaning of parts that whole they form;
- Contextualisation: critical reflection on the background of the research setting;
• Interaction between researchers and subjects: reflection on how data was socially constructed through interaction between researchers and participants;
• Abstraction and generalisation: relating unique research findings to concepts that can be applied in multiple situations;
• Dialogical reasoning: the lens through which data is constructed, viewed and organised;
• Multiple interpretations: identifying multiple viewpoints and the reasons for them; and
• Suspicion; sensitivity to bias and systematic distortion in the data.

Klein and Myers (1999) suggest that researchers should identify which principles, and how they apply in particular settings. For this dissertation, the principles of the hermeneutic circle, contextualisation, abstraction and generalisation, dialogical reasoning and multiple interpretations will be emphasised, while the principles of suspicion and interaction between the researchers and subjects will not be covered in depth.

The principles of suspicion and interaction between the researchers and subjects have not been covered in depth. This research as focused on understanding the context of knowledge management, and has not looked specifically for any bias or systematic distortions in the data (suspicion). Data gathered from interviews has not been examined for hidden meanings, and the social world behind the interview data has not been explored.

Likewise, the interpretation of the HRM department by the interviewees has not been explored, and the data that they have provided has been accepted without detailed consideration of process of interaction (interaction between the researcher and subjects).
3.1 Application of the Principles

Klein and Myers (1999) consider the hermeneutic circle to be the overarching principle from which the others expand. The hermeneutic circle is concerned with harmony between the details and whole; the “plausibility” of the story (Klein & Myers 1999). In this research several theories and concepts have been used to examine elements of knowledge management, and then build a broader view of knowledge management.

The Elements of Knowledge Management framework developed as part of this research is one example of moving between the whole to parts and back to the whole. The framework was developed from interviewees definitions of knowledge management, which were examined for key words and concepts (see section 2, Chapter 6 for more details). The concepts were then re-combined to form a model of the perception of knowledge management within the HRM department.

Another example of hermeneutic understanding is in the use of Markuses knowledge reuse situations. After a broad understanding of the HRM department's work context was achieved, it was divided into parts (knowledge reuse situations) before being re-constructed to consider the technology support needs of the department.

The theoretical basis for this research was outlined in Chapter 4 (whole), after which the theories were applied in separate chapters (Chapters 5, 6 and 7) and brought together in the conclusions of Chapter 7. The examples here clearly show that a hermeneutic approach has been taken within this research, with understanding moving from the parts to the whole and vice-versa.

The principle of dialogical reasoning has been addressed in Chapter 3, Research Strategy and Design, and Chapter 4, Theoretical Frameworks. Chapters 3 and 4 have outlined the research
assumptions, approaches and theories that have been used in the construction, viewing and organisation of data.

The principles of contextualisation and multiple interpretations have been addressed in the examination of the work context of the case organisation. A key focus of this research has been to understand knowledge management within the social context of knowledge construction by the HRM department. Chapter 5 and 7 have explored the context and influences on knowledge management within the department. Multiple interpretations were documented from the officers, advisers, managers and others identified within the HRM department, and the different nature of work of each group was explored to understand their differing viewpoints on knowledge and knowledge management.

Finally, the principle of abstraction and generalisation has been achieved through the use of theories to relate the work and situation of the HRM department to ideas and concepts that will apply in multiple situations. Following Walsham's (1995) categories of generalisation that is achievable from interpretive research, this research has generalised through the development of concepts (the Elements of Knowledge Management Framework) and the drawing of specific implication (for technology support of knowledge management).

Overall, the principles have been combined to develop a dissertation that is plausible and convincing regarding the role of technology in supporting knowledge management. The weaknesses in this study relating to the principles of suspicion and interaction between the researcher and subjects are identified as valuable areas of future research.
4 Implications for Theory

This study has used a number of existing theories (Holsapple and Joshi 2000, 2002a, 2002b, 2004; Markus 2001), as well as proposing a new framework for knowledge management (Elements of Knowledge Management, see Chapter 6, Perceptions). The usefulness and constraints of the theories are discussed in the following sections.

4.1 Holsapple and Joshi’s Influences on Knowledge Management

Holsapple and Joshi’s (2000, 2002a, 2002b, 2004) framework for KM has been used to explore the influences on knowledge management within the case organisation. The theory identifies three groups of influences; Managerial, Resource and Environmental. The framework was discussed in Chapter 4 (Theoretical Frameworks) and applied to the HRM department in Chapter 7 (Influences on Knowledge Management).

The framework was useful to examine the factors that influenced knowledge management within the case organisation. The influences in the framework covered a wide range of factors, allowing many aspects of the case organisation to be explored. It also allowed a complex model of the internal and external factors that impact knowledge management to be built and applied to the HRM department. The results of this study have validated the influences as an appropriate framework to use when exploring knowledge management.

However, there were some limitations to Holsapple and Joshi’s model. While the influences considered in the model are broad, many are poorly defined and hence are difficult to apply consistently. For example that environmental influences (markets, competitors, customers, suppliers and the government, economic, political, societal and educational climate) are not defined clearly, despite
being accredited with impacting some of the knowledge resources (e.g. the manipulation skills that can be acquired) that also influence knowledge management.

In contrast, the management influences are covered in great depth. The management influences would be most relevant if a clearly defined knowledge management initiative has commenced, as they allow the exploration of the drivers (leadership, coordination) and constraints (measurement) of a strategy. However, if a knowledge management effort is new or yet to be established, the subsequent lack of clear goals and strategy mean that the management influences can only be applied in a limited manner.

Many of the resource influences are overlapping and interact, which often leads to duplicated analysis. For example, the knowledge resource influences of purpose, strategy and infrastructure are all closely related and difficult to discuss separately. Likewise, participant’s knowledge (knowledge resource) is closely related to the human resource influences, and infrastructure is related to material resource influences. Further refinement of the framework is needed to clarify, and perhaps simplify, the interactions between difference influences on knowledge management.

An additional environmental influence was also identified; previous exposure to knowledge management. Officer 1’s previous experience in knowledge management meant that they were predisposed to consider knowledge management needs. Other 2’s prior training was directing attention to knowledge management.

Exposure is significant because prior experience with knowledge management led to the promotion or conscious execution of knowledge management activities. As discussed in Chapter 7, prior experiences with knowledge management were not being exploited to improve knowledge activities in the department. Effective knowledge management training could be an opportunity for many
organisations to improve their knowledge activities; however, further research will be required to determine if this is the case.

### 4.2 Markuses Model of Knowledge Re-use Situations

Markuses (2001) model of knowledge reuse situations has been used to examine the content in which knowledge management could occur in the HRM department. Markus identifies four knowledge reuse situations:

- Shared work producers;
- Shared work practitioners;
- Expertise-seeking novices; and
- Secondary data miners.

Markuses model is explained in Chapter 4, and is applied to the HRM department in Chapter 7 (The Work Context).

Three knowledge reuse situations were identified in the HRM department - shared work producers, shared work practitioners and expertise-seeking novices. The knowledge reuse situations were useful for characterising the work performed in the HRM department, and clearly highlighted the different knowledge management needs within the different groups of the organisation. The technology and strategies suggested by Markus for different reusers were also helpful, and matched with the needs of the groups within the HRM department.

However, one weakness of Markuses work is the lack of description regarding the interaction of different knowledge reuse situations within a single organisation. In the HRM department, where three knowledge reuse situations were identified, many of the strategies suggested for improving knowledge reuse were incompatible - for example, providing access to knowledge with context for shared work producers, but without content for expertise-seeking novices. The interactions and dependencies between knowledge reuse
situations is another area for future knowledge management research.

4.3 Social Construction of Knowledge

As outlined in the Literature Review (Chapter 2, section 3.2) and Chapter 4, this study has taken the view that knowledge is socially constructed and situated. Some knowledge management studies do not adopt a socially constructed view of knowledge, often seeing knowledge as something more than information that can be manipulated as a resource.

By adopting a social construction view of knowledge, this study has successfully explored how organisational participants viewed knowledge and knowledge management, in this case supporting the view of the researcher. The situated view of knowledge allowed the role of technology in supporting knowledge management to be explored in a very specific manner, relevant to the HRM department.

Adopting a social construction view of knowledge was not without challenges. Eliciting useful responses from interviewees took time and patience, and apologies for asking difficult, theoretical questions. However, participants were assured that there were no incorrect answers, and that this wasn't a test with implications for their job. The findings regarding knowledge are also specific to the HRM department at the point in time interviews took place, and to remain relevant will need to be periodically re-explored. Further research is also required to determine the impact that the socially constructed view of knowledge will have on future technology development and adoption within the HRM department.

4.4 Elements of Knowledge Management

A major contribution of this research has been the development of the Elements of Knowledge Management Framework, outlined in Chapter 6 Perceptions. The framework identifies six groups of
elements that form part of knowledge management perceptions: sources, properties, actions performed, uses, methods and objective. The element groupings support the view that the perception of knowledge management is socially constructed and is situated in the unique context of an organisation.

Developed from the interview participant’s views of knowledge and knowledge management, the framework is a useful tool to start exploring knowledge management or perceptions of organisational knowledge. The framework would also be a useful tool to identify business goals that might be supported through the use of technology for knowledge management.

However, the framework was developed from a single case study, and requires further refinement to allow it to be generalised to other organisations. Further research is also required to validate the framework and its usefulness to other knowledge management studies.

5 Implications for practice
This study has shown that successful use of technology to support knowledge management is not as simple as adopting a product or group of products. The organisational perception of and influences on knowledge and knowledge management need to be considered when investigating how to use technology to support knowledge management.

Knowledge management is complex concept that cannot be simplified by the processes of a piece of software. Within a single department, three disparate knowledge reuse situations were identified, each with distinct knowledge management and technology support needs. If knowledge management is going to be successful within an organisation, a variety of approaches are need to deal with the diversity of knowledge types and differences (Alavi and Leidner 2001).
Within the HRM department personal networks and interpersonal skills are highly valued for accessing information, whereas the available technology (HRM file server and PeopleSoft information system) were negatively viewed. By understanding this context, it is clear that any knowledge management efforts would need to focus on changing work practices before new or changed technology could be introduced.

Exposure to knowledge management can offer benefits to organisations, as experiences within the HRM department. By harnessing prior experiences within knowledge management, organisation could improve the perception of knowledge management and the execution of knowledge activities. Conversely, poor experiences with knowledge management may contribute to scepticism and apathy about the topic.

The complexity of knowledge management has also been reinforced by the Elements of Knowledge Management framework developed from the case study interviews. The framework shows that realising the benefits of knowledge management requires alignment of many different organisational resources, not least the perceptions of employees.

6 Limitations

Like any study, this research has a number of limitations.

Firstly, this research has been based on a single case study. Ideally, this research would have encompassed several organisations to improve the plausibility and reliability of the findings. However, investigating additional case organisations would not have allowed the deep level of analysis that has been applied in this study. Investigating knowledge management in the same fashion as this research is another area for future research.
The case organisation explored is public university, and as such the findings may be more relevant to other public organisations than private companies. Again, replication of this study in private organisations could be a valuable area of future research.

This study has not used multiple methods to triangulate the research data. However, stratified purposeful sampling (see Chapter 3, section 3) has been applied to ensure that wide ranges of viewpoints in the organisation were explored. These viewpoints have been combined to form the research findings.

In addition, three different theories were used to explore knowledge management within the case organisation – Holsapple and Joshi’s knowledge management framework, Markuses knowledge reuse situations and the social construction perspective of knowledge. The theories were combined to develop a coherent and consistent set of findings relating to knowledge management within the HRM department.

### 7 Further research

A number of areas for future research have emerged during the course of this research. Some research topics could include:

- The examination of use of technology in different knowledge management activities - for example, how technology is used in knowledge creation or generation. Through the close examination of technology use in knowledge activities, the role of technology in knowledge management could be further refined and improved.

- Validation of the Elements of Knowledge Management framework for use in exploration of knowledge management and group perceptions of knowledge, as well as further refinement and generalisation of the framework.
• Research on how different knowledge reuse situations (see Chapters 4 and 5) interact, and how technology can support multiple reuse situations within a single organisation.

• Refinement of Holsapple and Joshi’s knowledge management influences, to clarify some influences (e.g. exposure as an environmental influences) and clearly identify the dependencies and redundancies between influence groupings.

• Determination of the impact that the socially constructed view of knowledge will have on future technology development and adoption by organisations, and within the HRM department.

• Further exploration of the impact that prior exposure has on people’s perceptions of knowledge management and the way that they carry out knowledge management activities. This could include exploring both positive and negative experiences within knowledge management.

• Replication of this study in other organisations, including public and private organisations. This research was carried out using a single case organisation, and as such is limited in generalisability. Future research could broaden the applicability of the findings in this dissertation.

Future research into knowledge management could also adopt a more critical perspective, questioning the role of knowledge management in improving working conditions and the role of organisations in society in general.
References


References


References


Holsapple, C. W. and Joshi, K. D. (1999). Description and Analysis of Existing Knowledge Management Frameworks. 32nd Hawaii International Conference on System Sciences, Maui, HI (15 pages).


1 Introduction

1.1 Purpose

The purpose of this document is to outline the case study research that I am planning to conduct so as to fulfil the requirements for my PhD candidature.

1.2 Participant Details

Researcher: Vanessa Freke, PhD Candidate

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- Faculty of Engineering and Information Technology
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- (mobile) 0408 477 164

Fax (work) 07 3875 5051

Email V.Freke@cit.gu.edu.au

Postal Address
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- School of CIT
- Nathan Campus, Griffith University
- 4111

1.3 Thesis Description

My PhD thesis is concerned with the topic of Knowledge Management (KM). Specifically, I am looking to explore how organisations carry out knowledge activities, how individuals use technology within knowledge activities, and
how the organisational context (including the prevailing organisational culture and politics) affect KM within an organisation.

1.4 Justifications from Literature

Knowledge has been advanced as the only source of sustainable competitive advantage for the future, making it possibly the most important organisational asset. With the growing amount of knowledge available to organisations, organisational knowledge needs to be effectively managed and leveraged so as to deliver its promised benefits.

Managing organisational knowledge has not proven to be easy. Some organisational knowledge is easily identified and captured, often in written form. However, a significant amount of organisational knowledge is not explicit; it exists in the minds of employees, and in organisational routines, norms and values. Organisational knowledge may exist in many different repositories, and discovering such knowledge may be difficult. Moreover, when personnel leave an organisation, they take with them valuable knowledge. Hence the identification and leverage of organisational knowledge requires a wide-ranging strategy, often referred to as Knowledge Management (KM).

The value of organisational knowledge is revealed when it is applied in organisational activities. Having access to the right knowledge at the right time may be the difference in new product development or innovation, hence providing a non-replicable source of competitive advantage.

Technology has long been widely accepted as an essential tool for modern business. Since so much organisational knowledge is either stored in or created using digital systems, it seems natural to look towards technology for support in managing organisational knowledge. However, many of the technological solutions have been found to be limited. Often software solutions may be too narrow in their focus or unsuitable for the organisation’s context or needs. Too often, KM tools focus on explicit knowledge, neglecting the important tacit knowledge held by organisational members.
The purpose of this research is to investigate how knowledge activities are carried out, and how technology is used (or not used) within knowledge activities. Importantly, this research will also look at the context in which the knowledge activities are taking place, proposing that the organisational context will affect how the knowledge activities are carried out and how technology can be used.

## 2 Outcomes

Participation in this study will lead to several outcomes for the case organisations. These include:

- Analysis of knowledge activities being carried out within the organisation
- Analysis of the use of technology as part of the knowledge activities carried out within the organisation
- An increased understanding of the factors that influence knowledge management within the organisation
- An increased understanding of how to best leverage technology within organisational knowledge management initiatives

A report detailing these outcomes will be delivered to case organisations. If requested, a presentation of results will accompany the report. Additional outcomes may be negotiated as requested with case organisations.

## 3 Case Study Strategy

This research will gather data from a minimum of two case studies. The case study research method allows exploration of a phenomena within its natural setting without manipulation of subjects or events (Yin, 1994:13; Benbasat et al, 1987). A theoretical model developed by Holsapple and Joshi (2000) will guide research.
3.1 Data Sources

Data gathered from the organisation should come from four sources; interviews with organisational members, questionnaire responses elicited from organisational members, work observations and from organisational documentation. Estimated length of access and typical manifestations of data sources are given below.

<table>
<thead>
<tr>
<th>Data Source</th>
<th>Length of Access</th>
<th>Typical Manifestations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews</td>
<td>Maximum of 1hr per interview</td>
<td>IT Managers, Committee Heads, General Staff</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>Maximum of 4 pages in length</td>
<td>General Staff</td>
</tr>
<tr>
<td>Documentation</td>
<td>To be determined on an individual basis</td>
<td>Intranet, Procedure Documentation, Manuals</td>
</tr>
<tr>
<td>Work Observation</td>
<td>To be determined on an individual basis</td>
<td>Mostly general staff</td>
</tr>
</tbody>
</table>

4 Organisational Commitment

4.1 Organisational Resources Required

- Access to organisational members for interviews and questionnaires
- Access to organisational documentation and intranet (or similar)
- Permission to observe general staff in daily activities

4.2 Permission to Record

Questionnaires and interviews will be conducted on a confidential basis. During interviews permission will be sought to record the interviews. Any recordings made will remain confidential, as will the contents of interviews and questionnaires.

5 Confidentiality Agreement

The data gathered as part of this research will remain confidential. No names (of either participants or the organisation) will be disclosed. If necessary, a
confidentiality agreement will be entered into between the researcher and the organisation.

6 Schedule

A detailed research schedule will be negotiated with participating case organisations. However, estimated activity lengths and the consequent location of the researcher are given in the table below.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Length</th>
<th>Location (Researcher)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Documentation Review (general material)</td>
<td>1 week</td>
<td>Off-Site</td>
</tr>
<tr>
<td>Documentation Review (sensitive material)</td>
<td>1 week</td>
<td>On-Site</td>
</tr>
<tr>
<td>Interviews</td>
<td>1 hour per interview</td>
<td>On-Site</td>
</tr>
<tr>
<td>Questionnaires</td>
<td>4 pages maximum</td>
<td>Off-Site</td>
</tr>
<tr>
<td>Work Observation</td>
<td>1 day</td>
<td>On-Site</td>
</tr>
</tbody>
</table>

7 Questions

Any questions regarding this proposal should be forwarded directly to the researcher, Vanessa Freke, preferably via email (V.Freke@cit.gu.edu.au).
## Appendix B: Interview Questions

<table>
<thead>
<tr>
<th>Questions</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>About your work</strong></td>
<td></td>
</tr>
<tr>
<td>Can you describe your work group (group services, strategy etc) (how it</td>
<td></td>
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<tr>
<td>is constrained, the culture etc)?</td>
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<tr>
<td>How does your group interact with the other groups?</td>
<td></td>
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<tr>
<td>Can you identify the boundary/s of your formal work group (if it is</td>
<td></td>
</tr>
<tr>
<td>smaller than the department)?</td>
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<tr>
<td>Is there a smaller sub-group within your work group? How important is</td>
<td></td>
</tr>
<tr>
<td>that sub group?</td>
<td></td>
</tr>
<tr>
<td>Are you aware of any informal work groups within your organisation? Can</td>
<td></td>
</tr>
<tr>
<td>you describe some of them?</td>
<td></td>
</tr>
<tr>
<td>Are there many informal work groups?</td>
<td>YES/NO</td>
</tr>
<tr>
<td><strong>Questions about knowledge</strong></td>
<td></td>
</tr>
<tr>
<td>What is knowledge (in general)? Can you give some examples of knowledge?</td>
<td></td>
</tr>
<tr>
<td>What is organisational knowledge (within the context of your organisation)? Can you give some examples of organisational knowledge?</td>
<td></td>
</tr>
<tr>
<td>Where does organisational knowledge come from (within the context of your organisation)?</td>
<td></td>
</tr>
<tr>
<td>Do you think that other people share the same view of knowledge? (Same</td>
<td></td>
</tr>
<tr>
<td>level/departments, different levels/departments)</td>
<td></td>
</tr>
<tr>
<td><strong>Knowledge Management Strategy Details</strong></td>
<td></td>
</tr>
<tr>
<td><strong>General Questions</strong></td>
<td></td>
</tr>
<tr>
<td>What do you think is meant by the term KM?</td>
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<tr>
<td>What do you think would be the purpose of KM within your organisation?</td>
<td></td>
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<tr>
<td>What do you think YOUR role in knowledge management within the</td>
<td></td>
</tr>
<tr>
<td>organisation would be?</td>
<td></td>
</tr>
<tr>
<td><strong>Resource Influences</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Finances available</strong></td>
<td></td>
</tr>
<tr>
<td>Do you think that introducing a KM strategy would require funding?</td>
<td></td>
</tr>
<tr>
<td>Do you think that there would be any financial benefits for your group as a result of implementing a KM strategy?</td>
<td></td>
</tr>
<tr>
<td><strong>Human manipulation skills</strong></td>
<td></td>
</tr>
<tr>
<td>Do you feel that you have the skills to manipulate the knowledge that is available in your organisation? (Do you know enough to be able to gather the knowledge that you need, and then apply that knowledge?) Especially looking at people skills rather than technology skills</td>
<td></td>
</tr>
<tr>
<td>If YES, can you tell me about some of the skills (most important, difficult to acquire)?</td>
<td></td>
</tr>
<tr>
<td>If NO, what skills do you feel you are missing?</td>
<td></td>
</tr>
<tr>
<td><strong>Computer manipulation skills</strong></td>
<td></td>
</tr>
<tr>
<td>Do you feel that the technology that is available to you in your work assists you in manipulating knowledge?</td>
<td></td>
</tr>
<tr>
<td>What else do you feel that technology could provide? (e.g. data mining, increased searching facilities)</td>
<td></td>
</tr>
<tr>
<td><strong>Human knowledge available</strong></td>
<td></td>
</tr>
<tr>
<td>What knowledge isn't available through the server, internet or files?</td>
<td></td>
</tr>
<tr>
<td>Computerised knowledge available</td>
<td>What knowledge is stored using some form of technology? More advanced than filing cabinets</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Environmental</td>
<td>Has there been any pressure from external sources to adopt/consider KM?</td>
</tr>
<tr>
<td></td>
<td>Have the recent improvements in technology been responsible for your consideration/adoPTION of KM?</td>
</tr>
<tr>
<td>Managerial Influences</td>
<td>Do you feel that knowledge is a valued resource in your organisation?</td>
</tr>
<tr>
<td></td>
<td>Are knowledge processes (how you use knowledge to do your job) identified and valued in your organisation?</td>
</tr>
<tr>
<td></td>
<td>Are the knowledge resources and processes assessed for quality?</td>
</tr>
<tr>
<td></td>
<td>What have been the outcomes in general as a result of the KM strategy/increased awareness of KM?</td>
</tr>
<tr>
<td></td>
<td>What impact or change do you think that KM (strategy/awareness) would have on your job? Has KM (strategy/awareness) changed the way that you do things?</td>
</tr>
<tr>
<td></td>
<td>What impact or change do you think that KM (strategy/awareness) would have on your organisation?</td>
</tr>
<tr>
<td></td>
<td>Have there been any conflicts arising from the KM strategy/increased awareness of KM?</td>
</tr>
<tr>
<td>Participation</td>
<td>Do you feel that you are encouraged to participate in the concepts of knowledge management?</td>
</tr>
<tr>
<td></td>
<td>Is your participation in KM something you see as routine or a chore?</td>
</tr>
<tr>
<td></td>
<td>Have any incentives to participate in KM have been provided?</td>
</tr>
<tr>
<td></td>
<td>What makes participation in the strategy difficult?</td>
</tr>
<tr>
<td></td>
<td>What makes it easy to participate in KM strategy?</td>
</tr>
<tr>
<td>Culture and Politics</td>
<td>Has KM changed the political balance in your group or organisation? Has KM affected the organisational politics?</td>
</tr>
<tr>
<td></td>
<td>Has KM changed the culture in your group or organisation?</td>
</tr>
<tr>
<td>Generation</td>
<td>What knowledge is most valuable to you? Why?</td>
</tr>
<tr>
<td></td>
<td>What knowledge is most valuable to the organisation? Why?</td>
</tr>
<tr>
<td></td>
<td>Where do you get the data, information and knowledge that you use in your job?</td>
</tr>
<tr>
<td></td>
<td>How do you use technology in your job?</td>
</tr>
<tr>
<td>Codification</td>
<td>How do you identify knowledge that should be stored?</td>
</tr>
<tr>
<td></td>
<td>How much explicit knowledge is stored using technology? None/very little/most/all</td>
</tr>
<tr>
<td></td>
<td>Do you attempt to store personal (i.e. implicit) knowledge? For example, notes on cases, experience in developing client strategies, personal interpretations. YES/NO</td>
</tr>
<tr>
<td></td>
<td>If YES, how do you store knowledge? What technology, if any, do you use? Why do you store knowledge?</td>
</tr>
<tr>
<td></td>
<td>If NO, why don’t you attempt to store implicit knowledge?</td>
</tr>
<tr>
<td></td>
<td>Do you store all the knowledge that you generate? Why/Why not?</td>
</tr>
<tr>
<td></td>
<td>How do you decide where to store the knowledge? What knowledge is the most difficult/easy to store?</td>
</tr>
<tr>
<td></td>
<td>What knowledge would not be stored if you could not use technology?</td>
</tr>
</tbody>
</table>
### Appendix B: Interview Questions

<table>
<thead>
<tr>
<th>Utilisation</th>
<th>What barriers do you think some people might have to storing knowledge? (i.e. lack of confidence with technology, guarding of own work, too much work, organisational barriers etc)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Which stored knowledge is the easiest to use?</td>
</tr>
<tr>
<td></td>
<td>What stored knowledge is the most difficult to use?</td>
</tr>
<tr>
<td></td>
<td>Are there any technological barriers to using stored knowledge?</td>
</tr>
<tr>
<td></td>
<td>Is there any stored knowledge that you don’t use? Why? Why not?</td>
</tr>
<tr>
<td></td>
<td>How would you like to access the knowledge?</td>
</tr>
<tr>
<td></td>
<td>What knowledge couldn’t be accessed without technology? (What access has been enabled via technology?)</td>
</tr>
<tr>
<td></td>
<td>Is there any attempt to change the ways that people store knowledge based on problems with accessing knowledge?</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Technology Questions</th>
<th>What software do you use in your work?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Would you say that you were comfortable using these systems?</td>
</tr>
<tr>
<td></td>
<td>Very uncomfortable</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>What technology do you use the most? Why?</td>
</tr>
<tr>
<td></td>
<td>What technology do you use the least? Why?</td>
</tr>
<tr>
<td></td>
<td>What hardware systems do you access in your work?</td>
</tr>
<tr>
<td></td>
<td>What do you see as factors affecting your technology use?</td>
</tr>
<tr>
<td></td>
<td>What do you see as factors affecting other peoples technology use?</td>
</tr>
<tr>
<td></td>
<td>How do you see technology participating in a knowledge management strategy?</td>
</tr>
<tr>
<td></td>
<td>What barriers/difficulties exist that make using technology within knowledge activities challenging?</td>
</tr>
<tr>
<td></td>
<td>Has your use of technology changed since the introduction of the KM strategy/increased awareness of KM?</td>
</tr>
<tr>
<td></td>
<td>What technology would you like to be provided as part of the KM strategy? (Be creative!!)</td>
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</tbody>
</table>
# Appendix C: Interview Participant Details

<table>
<thead>
<tr>
<th>Pseudonym</th>
<th>Section</th>
<th>Division</th>
<th>Campus</th>
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<tr>
<td>Adviser 1</td>
<td>Group</td>
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<td>Nathan</td>
</tr>
<tr>
<td>Adviser 2</td>
<td>Group</td>
<td>Arts</td>
<td>Nathan</td>
</tr>
<tr>
<td>Adviser 3</td>
<td>Central</td>
<td>Strategy</td>
<td>Nathan</td>
</tr>
<tr>
<td>Adviser 4</td>
<td>Central</td>
<td>Strategy</td>
<td>Nathan</td>
</tr>
<tr>
<td>Adviser 5</td>
<td>Central</td>
<td>Systems</td>
<td>Nathan</td>
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<tr>
<td>Adviser 6</td>
<td>Group</td>
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<td>Logan</td>
</tr>
<tr>
<td>Adviser 7</td>
<td>Group</td>
<td>Business</td>
<td>Nathan</td>
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<tr>
<td>Adviser 8</td>
<td>Central</td>
<td>Specialist</td>
<td>Nathan</td>
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<td>Central</td>
<td>Strategy</td>
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<td>Group</td>
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</tr>
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<td>Central</td>
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<td>Other 2</td>
<td>Central</td>
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## Appendix D: Knowledge Management Perception Mapping

<table>
<thead>
<tr>
<th>Adviser 1</th>
<th>Properties</th>
<th>Sources</th>
<th>Actions Performed</th>
<th>Uses</th>
<th>Method</th>
<th>Objectives</th>
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<tr>
<td></td>
<td>Procedure</td>
<td>Organise Document management</td>
<td>Sharing</td>
<td>Easy</td>
<td>Staff Training</td>
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<tr>
<td>Adviser 2</td>
<td></td>
<td>Collecting Storing</td>
<td>Distributing</td>
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<td>Achieve university's goals Retention</td>
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<td>Adviser 4</td>
<td>Things known by people</td>
<td>Control</td>
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<td>Retention</td>
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<tr>
<td>Adviser 5</td>
<td>People's skills</td>
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<td>More than 1 person knows what is happening</td>
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<td>Adviser 6</td>
<td>Records, data People's skills</td>
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<td>Adviser 7</td>
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<td>Keeping people up to date</td>
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<td>Other 2</td>
<td>Other 3</td>
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<td>Data Information</td>
<td>Structure Harness</td>
<td>Use (data and information)</td>
<td>Further business of the university</td>
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<td>Formal/Informal</td>
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<td>Structure Harness</td>
<td>Data Policies Files</td>
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<td>Future Use</td>
<td>Easily Efficiencies</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Development of people and the organisation.

Manager 1: Capture
Manager 2: Processes, Systems, Policies, Procedures
Manager 3: Links, Overlaps, Meaningful
Manager 4: Disbursement, Sharing
Other 1: Formal/Informal, Information
Other 2: Static/Active, Policies, Files
Other 3: People, Processes, Record, Store, Recall, Future Use, Easily, Efficiencies