UNIVERSITY OF THE WESTERN CAPE


# Knowledge Management infrastructure and knowledge sharing: The case of a large Fast Moving Consumer Goods Distribution Centre in the Western Cape.

A research project submitted in partial fulfilment of the requirements for the Master's degree in Management in the School of Business and Finance in the Faculty of Economic and Management Sciences at the University of the Western Cape.

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**Key Words**

Knowledge

Knowledge Sharing

Knowledge Management

Knowledge Management Maturity

Knowledge Transfer

Data generation

People Management

Organisational Knowledge

Tacit Knowledge

Organisational Capabilities

**Abstract**

Knowledge is seen as the most important strategic resource in organisations, and the management of this knowledge is considered critical to organisational success. The sharing of this knowledge will assist organisations to create, organise, distribute and transfer important knowledge between employees within and across organisations. This suggests that proper knowledge sharing (KS) can lead to efficiency and effectiveness, which can insure greater performance in an organisation.

The aim of this study is to understand how knowledge is created, shared and used within the Fast Moving Consumer Goods (FMCG) Distribution Centre (DC) in the Western Cape (WC). It also aims to understand knowledge sharing between individuals in the organisation. A literature review was conducted, in order to answer the research questions- this covered the background of Knowledge Management (KM) and KS–and its current status with particular reference to SA's private sector. The study found that Technological KM infrastructure, Cultural KM infrastructure and Organisational KM infrastructure are important enablers of KS. A conceptual model was developed around these concepts. In order to answer the research questions, the study identified a FMCG DC in the WC, where KS is practiced.



The methodology used was mainly qualitative research. Part of the data was collected through a 5 points Likert scale , which ranged from strongly disagree to strongly agree, and structured face to face interviews that culminated into a case study. The survey and interview questions were sourced from the literature, and the grammar was slightly changed to make sense in the context of the DC being studied. The population consisted of 26 people, all of whom have been surveyed. 24 of the 26 people were interviewed; all of the survey/interview respondents were in managerial positions.

A letter of permission was requested from the DC, before the research commenced. All the key informants were asked to participate through an e-mail which was addressed to each of their immediate line managers. Participants were assured their right to participate, decline or withdraw from the study at any time should they feel uncomfortable. All data literature sources have been acknowledged in order to respect the intellectual property rights of other authors and avoid plagiarism.

The objective of this study was to use the information that was gathered from the survey and interview responses to make recommendations to the organisation studied (unit of analysis) on how to approach and deal with the sharing of knowledge. This study is limited to a single case which suggests that there is a possibility that the results cannot be generalised beyond the researched DC– without conducting further study.

It is recommended that for future research, this study be replicated (through a qualitative study) across FMCG DCs in South Africa, and specifically in the Western Cape. For the purposes of replication, mixed methods should be used to create a triangulation between the two approaches (quantitative and qualitative).

**DECLARATION**

I, Chadrick Hendrik George, hereby declare that "*Knowledge Management infrastructure and knowledge sharing: The case of a large Fast Moving Consumer Goods Distribution Centre in the Western Cape*" is my own original work and that all sources have been accurately reported and acknowledged, and that this document has not previously in its entirety, or in part, been submitted at any university, in order to obtain an academic qualification.

Signed: …….  Date: …….

**ACKNOWLEDGEMENTS**

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I am particularly grateful to my fiancée Alicia Van Staden, for always believing in me. To our children, Malcolm and Morgan, I say thank you because you inspired me more than you will ever imagine. I trust that this humble effort will inspire you to do even better.

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**Abbreviations and Acronyms**

BI: Business Intelligence

BW: Business Warehouse

DC: Distribution Centre

ERP: Enterprise Resource Planning

FMCG: Fast Moving Consumer Goods

GM: General Manager

ICT: Information and Communication Technology

IT: Information Technology

KM: Knowledge Management



KPI: Key Performance Indicator

KS: Knowledge Sharing

MNC: Multinational Corporation

OK: Organisational Knowledge

SA: South Africa

SAP: Systems Applications and Products

UWC: University of the Western Cape

WC: Western Cape

**Definition of terms**

| Term | Description |
|---|---|
| Knowledge | Information combined with experience, context, interpretation, and reflection. It is a high value form of information that is ready to apply to decisions and actions (Davenport, De Long and Beers, 1998). |
| Intangible Knowledge | Personal knowledge resulting from individual experiences (Nonaka and Takeuchi, 1995:1). |
| Tangible Knowledge | Knowledge that can easily be conveyed in formal language, like manuals and specifications for example (Nonaka and Takeuchi, 1995:2). |
| Tacit Knowledge | Knowledge that resides in the minds of people that has not been structured (Sveiby, 2001:2). |
| Knowledge Management | Is a management discipline that seeks to have an impact on knowledge processing (McElroy, 2002). |
| Knowledge Sharing | Refers to the provision of task information and know-how to help others and to collaborate with others to solve problems, develop new ideas, or implement policies or procedures (Cummings, 2004). |
| Technological KM infrastructure | The technical systems within an organisation that determines how knowledge travels throughout the enterprise and how knowledge is accessed (Gold, Malhotra and Segars, 2003) |
| Cultural KM infrastructure | The elements that enable the general organisational culture to be supportive and encouraging of knowledge-related activities (Gold, Malhotra and Segars, 2003). |
| Organisational culture | It defines the core beliefs; values, norms and social customs that govern the way individuals act and behave in an organisation (Wang, 2005: 267). |
| Organisational Infrastructure | The rules, policies, procedures, hierarchy of reporting relationships, incentive systems and departmental boundaries |

| | |
|---|---|
| | that organise tasks within the firm (Gold, Malhotra and Segars, 2003). |
| Organisational structure | Comprises of formal division of work roles with the purpose to organise work activities (Ghani, et al., 2002). |

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## CHAPTER 1: INTRODUCTION

### Introduction

This chapter provides an overall introduction to the study. The first part of the background discusses the significance of knowledge, defines the concepts Knowledge Management (KM) and Knowledge Sharing (KS). The latter concept is considered critical for this study, as this study focuses on KS at a Fast Moving Consumer Goods (FMCG) Distribution Centre (DC) in the Western Cape (WC).

The rationale, statement of research purpose, together with the research objectives, aims and questions are presented. The next section covers some of the literature consulted on the topic and explains the conceptual framework with the study limitations. The chapter concludes with an overall outline of the content layout of each chapter and a summary.

The purpose of this study was to investigate how technological KM infrastructure, Cultural KM infrastructure and Organisational KM infrastructure contribute to KS in the organisation. The study was centred on a FMCG DC in the WC, which is tasked with having to ensure that customers receive the goods they order in full and on time.



The general underlying premise was that good KM practices lead to efficiency and effectiveness, and hence the improvement of organisational performance. The study aimed further to examine how knowledge is managed at the DC level.

### Background of the Research

Knowledge has become one of the critical driving forces for business success. It is also the main enabler to achieving business performance (Hislop, 2009). Organisations are becoming more knowledge intensive, by hiring “minds” more than “hands”, and the need for leveraging the value of knowledge is increasing (Wong, 2005: 261). Employees are the hub for creating knowledge (Holsapple and Joshi, 2001) because knowledge is kept within the individual, therefore, it is crucial to motivate these individuals to create and share their knowledge.

The recognition of knowledge as the key resource of today’s organisation affirms the need for processes that facilitate the creation, sharing and leveraging of individual and

collective knowledge (Becerra-Fernandez and Sabherwal 2001). According to Ipe (2003), it should be noted that knowledge exists at multiple levels within the organisation.

Organisations are well aware, that they need to be competitive. In view of this, Hamidi et al (2012) argues that transferring the right knowledge to the right person at the right time can enhance the organisation's competitiveness. Thus, Organisations should also consider how to transfer expertise and knowledge from experts who have it to novices who need to know (Hinds et al 2001). The most difficult challenge, according to Radwan and Pellegrini (2010), is how to integrate knowledge in everyday organisational tasks and activities, which should become the objective and role of every organisation.

De Long and Fahey (2000) divided it into individual, group, and organisational level. Nonaka and Takeuchi (1995) recognised the importance of individual employees in the knowledge creation process. This suggests that employees are at the heart of knowledge creation and sharing within the organisation.



This study is conducted across to two of eleven DCs, with a strong focus on one DC which is located in the WC- within the same organisation. The organisation operates within the food and beverage industry. The organisation's key challenges are to adhere to principles of good corporate governance and improve access compliance.

They aim to redesign their entire authorisation process, increase visibility and enable proactive control of authorisation risks in governance, risk, and compliance. This large distribution centre has been using Systems Applications and Products (SAP) since 1997. They were also the first South African company to implement the full suite of Virsa access control applications; Virsa was later purchased by SAP.

During the preliminary discussions, the researcher learnt that the organisation focuses quite strongly on KM, and employees are encouraged to create and share knowledge. There are employees in the organisation who disagree. The organisation, just like many other South African firms is challenged with high staff turnovers, leaving a vacuum to be filled, making it imperative for knowledge to be shared.

According to Ipe (2003) the use of the term sharing implies that this process of presenting individual knowledge in form that can be used by others involves some conscious action on the part of the individual who possesses the knowledge. Sharing also implies that the sender does not relinquish ownership of the knowledge. Instead, it should result in joint ownership of the knowledge between the sender and the recipient.

The implications of sharing are important, since the DC has learnt that when employees leave, they depart with valuable knowledge (tacit knowledge not transferred to others). It appears that the firm started to introduce programmes that can facilitate the process of knowledge creation and sharing. During a face-to-face interview with the organisation's Information Officer in 2012, the researcher learnt that these programmes enjoy Senior Management's acknowledgement and support.

The organisation already decided on how to encourage the creation, sharing and management of knowledge amongst employees. Interviews revealed that the organisation recognises knowledge (judged by Senior Managers' support of knowledge) as part of their asset base. As a result, it started to invest in the protection, collection and distribution of knowledge.

From a technological point of view (technology, organisational structure and culture, form the Knowledge Infrastructure capability of the organisation, which is essential for knowledge sharing), the organisation has made big investments, boasting with its own Information Management System.

KS is important because it provides a link between the individual and the organisation by moving knowledge that resides with individuals to the organisational level, where it can be converted into economic and competitive value for the organisation (Hendriks, 1999). Cohen and Levinthal (1990) propose that interactions between individuals who possess diverse and different knowledge can enhance the organisation's ability to innovate far beyond what any one individual can achieve.

The DCs to be studied encourage interaction between individuals, with the aim of knowledge creation, sharing and management in an effort to improve its ability to innovate and better serve both its internal and external customers.

**Knowledge Management**

KM calls for managing organisational knowledge as a corporate asset and harnessing knowledge creation and sharing as key organisational capabilities (Nonaka and Takeuchi, 1995). A possible concern in this approach to managing knowledge is that much of organisational knowledge is controlled at the level of individuals (Staples and Jarvenpaa, 2001).

Individuals use the knowledge they have in their daily activities at work (Lam, 2000), and unless the organisation can facilitate the sharing of this knowledge with others, it is likely to lose it when such individual employees leave (Gupta and Govindarajan, 2000).Even if individuals stay with the organisation, the full extent of their knowledge may not be realised and utilised unless there are opportunities for the individual to share with others in the organisation (Weiss, 1999)



Understanding the process of knowledge sharing between individuals is one step toward a better understanding of knowledge sharing as a whole in organisations (Ipe, 2003). This suggests that there is a difference between KM and KS.

Different people define KM differently (Barclay and Murray, 2000). For the purpose of this research KM is defined as: A management of discipline that seeks to have an impact on knowledge processing (McElroy, 2002). Other definitions state that KM is the explicit and systematic management of necessary knowledge and the accompanying processes of creating, gathering, unlocking and developing this knowledge (Skyrme, 1996).

There is a growing realisation that knowledge sharing is critical to knowledge creation, organisational learning, and performance achievement (Bartol and Srivastava, 2002).
According to Barclay and Murray (2000) in practice, KM encompasses identifying and mapping intellectual assets within the organization to generate new knowledge for competitive advantage and make corporate information accessible to the decision

makers. This can be made possible by the application of technology, like the use of intranets.

The need to manage knowledge appears to be straight forward (Barclay and Murray, 2000). But they further argue that only a handful of organisations have responded to that need. The Firms that responded and implemented KM in the forms of technology-driven methods of accessing, controlling, and delivering information to massive efforts to change corporate culture (Barclay and Murray, 2000).

According to Kruger and Johnson (2011) the constituents of an efficient and effective KM remains a highly debatable topic. Researchers like Earl (1994) Chait (1999), Gallager and Hazlett (2004) and Kruger and Snyman (2005) emphasize that KM also requires social interaction. This highlights the important role to be played by individuals and which should not be undermined.

Effective KM implementation is only possible with effective KS (Alam et al., (2009). Encouraging KS throughout the organisation and establishing proper infrastructure seems to be the solution (Hamidi et al, 2012: 309). In this regard, Cummings (2004) and Pulakos et al., (2003), assert that KS occurs via written correspondence or face-to-face communications by networking with other experts, or documenting, organising and capturing knowledge for others.



Based on this, Hamidi et al. (2012), note that in 2003, Heath argued that KM was not entirely about managing knowledge; it was also about managerial, cultural and technical infrastructure that needed to be considered for successful KM implementation. Many other authors refer to KM infrastructure as KM enablers (Ho, 2009; Joshi, Parmer and Chadrawat, 2012; Ajmal, 2009, Sunardi and Tjakraatmadja, 2013).

According to Barclay and Murray (2000) knowledge and information have become the medium in which business problems occur, suggesting that, KM can result in a competitive advantage. The problem with this they argue is that KM has been perceived as an unmanageable problem.

The terms information and knowledge are often used interchangeably in the literature. Some authors distinguish between the two terms (e.g., Blacker 1995; Davenport and Prusak 1998; Nonaka and Takeuchi 1995; Pemberton 1998), whereas others use both terms synonymously (e.g., Kogut and Zander, 1992; Stewart, 1997). This research recognises the distinction between information and knowledge.

**Individual knowledge in the organisation**

Knowledge exists at multiple levels within organisations. De Long and Fahey (2000) divide it into individual, group, and organisational levels. Although individual constitutes only one level at which knowledge resides within organisations, the sharing of individual knowledge is imperative to the creation, dissemination, and management of knowledge at all the other levels within the organisation.

Nonaka and Takeuchi (1995) were among the first to recognise the importance of individual employees in the knowledge creation process. They argue that organisations cannot create knowledge without individual, and unless individual knowledge is shared with other individuals and groups, the knowledge is likely to have limited impact on organisational effectiveness.



Peter Drucker and Paul Straussmann are the management theorists who contributed to the evolution of KM and stressed the growing importance of information and explicit knowledge as part of the four scarce organisational resources (Barclay and Murray 2000). According to Kruger and Snyman (2005) for knowledge to be adequately managed, organisations should progress to the point where they are able to manage knowledge as a strategic resource.

During the mid- 1980s, the importance of knowledge as a competitive asset was indisputable even though classical economic theory ignores knowledge as an asset and most organisations still lack strategies and methods for managing it (Barclay and Murray, 2000). Recognition for the growing importance of organisational knowledge was accompanied by concerns over how to deal with exponential increases in the amount of available knowledge and increasingly complex products and processes (Barclay and Murray, 2000).

According to Barclay and Murray (2000) KM initiatives during the mid- 1990's were flourishing, thanks to the Internet and KM has become important to organisations all over the world.

**Knowledge sharing**

KS presumes a relation between at least two parties, one that possesses knowledge and the other that acquires knowledge (Hendriks, 1999). The first party should communicate its knowledge consciously and willingly or not in some form or other (either by acts, by speech, or in writing). The other party should perceive these expressions of knowledge and make sense of them (by imitating the acts, by listening, or by reading the book).

Two sub-processes make up the process of KS. First, knowledge sharing presumes the act of "externalisation" by those that have knowledge (the knower). Knowledge externalisation does not have to be a conscious act, nor does it have to be aimed at being shared by others (Hendriks, 1999). One can for example learn by watching someone perform a task, even if this person is unaware of the specific knowledge needed for the task, or unaware of being watched.



Secondly, KS presumes an act of "internalisation" by those seeking to acquire knowledge (knowledge reconstructors). Internalisation may occur in many different forms, including learning by doing, reading books, or trying to understand the codified knowledge in a knowledge base (Hendriks, 1999).

KS may not be successful if the concept of KM is not well understood by all the stakeholders of an organisation (Kant and Singh, 2008). From a managerial perspective KM is to understand, focus on, and manage systematic, explicit, and deliberate knowledge building, renewal, and application (Wigg, 1997). When KS is effective, productivity can also improve. Financial resources are necessary to support the infrastructure and manpower requirements for KS, since KS needs huge support from infrastructure, which requires huge funds (Apulu and Latham, 2009).

According to Vriens (1998) there are barriers that may be relatively straightforward, such as barriers of space and time. These barriers might also be more fundamental,

such as barriers of social distance, culture and language, and differences in mental and conceptual frames. More and more organisations are attempting to set up KM systems and practices to effectively use the knowledge they have (Ipe, 2003). KM aims to impact knowledge processing (Sveiby, 2001). There are many benefits, like increased efficiency, waste reduction which can accrue to an organisation through the correct management of knowledge. It (KM) can contribute to reduced costs and or increased revenues (Sveiby, 2001).

KM is important for organisational learning. According to Fahey and Prusak (1998: 265) “A core tenet of any organisational project is that without detecting and correcting errors in “what we know” and “how we learn,” an organisation’s knowledge deteriorates, becomes obsolete, and can result in “bad” decisions.”

If an organisation is unaware of the errors and mistakes it makes, it is highly unlikely that they can be able to fix it. Before addressing an error, one should be able to identify and define such an error. The longer it takes to fix that error or mistake, the greater the likelihood of poor decisions since those decisions are based on errors but the organisation is not even aware of (Fahey and Prusak, 1998).
Fahey and Prusak (1998) have identified 6 errors:



**Error 1:** Not having a working definition for KM. If there is no difference between knowledge and data or information there is nothing interesting in KM.
**Error 2:** Emphasising knowledge stock to the detriment of knowledge flow. Knowledge should not be confused with information, because knowledge is what remains after information has been applied. The terms information and knowledge are used interchangeably in the literature. Some authors distinguish between the two terms (e.g, Blacker, 1995; Davenport and Prusak, 1998; Nonaka and Takeuchi, 1995; Pemberton, 1998) whereas others use both terms synonymously (e.g., Kogut and Zander, 1992; Stewart, 1997). This study recognises the distinction between information and knowledge.

**Error 3:** Viewing knowledge as existing predominantly outside the heads of individuals, implying that knowledge is meaningless in the absence of the “knower.” Transferred (shared knowledge) and well managed knowledge can be useful in the

absence of the knower. Take for example the knowledge of a flying instructor transferred onto his/her students. In the absence of that instructor the student might be able to successfully fly the plane. Instead, knowledge should rather be viewed as originating "between the ears" of individuals.

**Error 4:** Not understanding that the purpose of KM is to create shared context. Given that knowledge exists within individuals who participate simultaneously in multiple group processes that make and execute key decisions, a fundamental purpose of "managing knowledge" must be to build some degree of shared context. That is a shared understanding of an organisation's external and internal worlds and how these worlds are connected (Fahey and Prusak, 1998).

**Error 5:** Disentangling knowledge from its uses. Knowledge is about imbuing data and information with decision- and action-relevant meaning. Information about customers for example becomes knowledge when decision makers determine how to take advantage of the information. In this way, knowledge is inseparable from thinking and acting (Fahey and Prusak 1998). What this implies is that a market solution is not better off without the implementation of that solution. That is not even knowledge, since knowledge is inseparable from thinking and acting.



According to Fahey and Prusak (1998), is there another error which faces organisations.

**Error 6:** The downplaying of thinking and reasoning. Knowledge generation is a never ending work in progress. Getting to different states of knowledge development requires some form of reasoning despite the fact that little attention is paid by allegedly well-managed organisations to their modes of reasoning.

Throughout the discussion of all these errors, the pertinent role played by the individuals becomes quite clear. The essence of knowledge and data would not have been there in the absence of the thinker and the individual. According to Ipe (2003) the individual should not be replaced during any stage of the KM process since an organisation's ability to effectively leverage its knowledge is highly dependent on its people who actually create, share, and use knowledge.

Knowledge is created through interaction between individuals at various levels in the organisation (Ipe, 2003). Nonaka and Takeuchi argue that organisations cannot create knowledge without individuals, and unless the individual knowledge is shared with other individuals and groups, such knowledge is likely to have limited impact on organisational effectiveness.

Leveraging knowledge is only possible when people can share the knowledge they have and build on the knowledge of others. KS between individuals is the process by which knowledge held by an individual is converted into a form that can be understood, absorbed, and used by other individuals (Ipe, 2003).

**Knowledge sharing in the organisation**

A crucial and difficult step in the organisational knowledge process is the conversion of tacit knowledge into explicit knowledge (Nonaka and von Krogh, 2009). An organisation's ability to effectively leverage its knowledge is highly dependent on its people, who actually create, share, and use the knowledge. Leveraging knowledge is only possible when people can share the knowledge they have and build on the knowledge of others (Ipe, 2003). Ipe defines KS as the act of making knowledge available to others within the organisation.



KS between individuals is the process by which knowledge held by an individual is converted into a form that can be understood, absorbed, and used by other individuals. The use of the term "sharing" implies that this process of presenting individual knowledge in the form that can be used by others involves some conscious action on the part of the individual who possesses the knowledge (Ipe, 2003).

Reporting involves the exchange of information based on some routines or structured formats. Sharing, on the other hand, implies a conscious act by an individual who participates in the knowledge exchange even though there is no compulsion to do so.
KS is important because it provides a link between the individual and the organisation by moving knowledge that resides with individuals to organisational level, where it is converted into economic and competitive value for the organisation (Hendriks, 1999).

Cohen and Levinthal (1990) proposed that interactions between individuals who possess diverse and different knowledge enhance the organisation's ability to innovate far beyond what any one individual can achieve. McDermont (1999) argued that if a group of people don't already share knowledge, IT is unlikely to help them create it. The great trap in KM according to McDermont (1999) is the use of information management tools and concepts to design KM systems.

McDermont (1999) has a philosophical view of knowledge, defining it as: What we retain as a result of thinking through a problem and what we remember from the route of thinking taken through the field. McDermont (1999) uses the following example to illustrate his theory: While developing a report on a competitor, a researcher deepens the understanding of a research question, the competitor, and the information sources used, particularly if a new question, source, or approach is used.

McDermont thus argues that knowledge is born in the mind of the individual as data; such data is then debated or argued to such a point that it makes sense, and eventually develops into information that can be used to solve a problem. McDermont reasons further that knowledge is always recreated in the present moment because most of us cannot articulate what we know. It is invisible and comes to the mind only when we need it to answer a question or to solve a problem.



**Factors that influence knowledge sharing**

Knowledge by its nature exists in both tacit and explicit forms. With the increasing recognition of the importance of knowledge in organisations, different types of knowledge have also begun to be valued differently within organisations (Ipe, 2003). These two characteristics of the nature of knowledge; namely tacit and explicit knowledge and the value attributed to knowledge have a significant influence on the way knowledge is shared within organisations.

To share this knowledge, we need to think about the present. To do this we need to know something about those who can use our insights, the problems they are trying to solve, and the level of detail they need, maybe even the thinking style they employ (McDermont, 1999).

Unlike Fahey and Prusak (1998) McDermont (1999) believes that it is incorrect to think of knowledge as the stuff between the ears of the individual because individuals don't learn on their own. We are born into a world overloaded with knowledge that is already making sense to other people. By participating in these communities we learn.

Knowledge is "intimately and inextricably bound with people's egos and occupations" and does not flow easily across the organisation (Davenport et al. 1998: 45). According to Stenmark (2001) people are not likely to share knowledge without strong personal motivation. Motivational factors that influence knowledge sharing between individuals can be divided into internal and external factors (Ipe, 2003).

Internal factors include the perceived power attached to the knowledge and the reciprocity that results from sharing. External factors include relationship with the recipient and rewards for sharing. To leverage knowledge, there is a need to develop existing communities, focus on the importance of knowledge to both the business and the people and let the community to decide what and how to share and create a community support structure (McDermont, 1999). Knowledge needs to have an "owner" who cares.



A lot of energy in KM has been spent on treating knowledge as an entity separate from the people who create and use it (Davenport, De Long and Beers, 1998). The problem with this is that, there is tacit knowledge.

The concept of tacit knowledge was first presented by Polanyi (1966) who argues that a large part of human knowledge cannot be articulated and made explicit easily. Tacit knowledge can be thought of as the know-how that is acquired through personal experience (Nonaka, 1994). It is therefore not easily codifiable and cannot be communicated or used without the individual who is the knower.

Explicit knowledge on the other hand, can be easily codified, stored at a single location, and transferred across time and space independent of individuals (Lam 2000). It is easier to disseminate and communicate (Schulz, 2001). Explicit knowledge therefore has a natural advantage over tacit knowledge in terms of its ability to be shared relatively easily among individuals. To transfer tacit knowledge from individuals

into a repository, organisations usually use some sort of community-based discussion and then make the information available to trainers and educators that are scattered throughout the business.

Such a repository can improve the user's access to knowledge. At the large distribution centre, where the research would be conducted during preliminary data collection, it appears as if the senior management feel that much of the important knowledge in their business was unstructured tacit knowledge.

To enhance the knowledge environment, KM projects should involve the establishment of an environment conducive for effective knowledge creation, transfer and use (sharing). Furthermore, KM should be regarded as an asset since it requires a capital investment, and generate income. This can be realised by treating knowledge like any other asset on an organisation's balance sheet.

KM project benefits towards the business are usually indirect, according to Davenport, De Long and Beers (1998). Thus, establishing the link between knowledge and financial performance is difficult. Shareholders do not invest in companies to have a knowledge-sharing culture or a knowledgeable sales force (Davenport, De Long and Beers, 1998). McElroy (2002) argues that data warehousing, groupware, document management, imaging, and data mining are at the heart of most KM strategies to date. But it is his argument that the continued narrow promote of KM can place its credibility at risk.



**Opportunities to share**

Opportunities to share knowledge in organisations can be both formal and informal in nature. Formal opportunities include training programs, structured work teams, and technology-based systems that facilitate the sharing of knowledge (Ipe, 2003). Informal opportunities include personal relationships and social networks that facilitate learning and the sharing of knowledge (Brown and Duguid, 1991; Nahapiet and Ghosal, 1998). Formal interventions and opportunities not only create a context in which to share knowledge but also provide individuals with the tools necessary to do so.

The conventional practice of KM is about getting the right information to the right people at the right time. The assumption in this statement is that, valuable knowledge exists- we just need to capture it. According to this assumption, KM begins sometime after knowledge is produced.

In support of Swanstrom's (1999) argument, Kaniki and Mphahlele (2002) think that no individual, organisation or community can however possess all the knowledge required for various situations. The level and amount of knowledge that an individual, organisation or community possesses, may not be sufficient for problem solving and decision making. The implication Kaniki and Mphahlele argue is that individuals must constantly learn, acquire new knowledge and be aware of who has the knowledge required for specific situations and share it accordingly.

Research has shown that the most amount of knowledge is shared in informal settings- through the relational learning channels (Jones and Jorda, 1998). Relational channels facilitate face-to-face communication which allows for the building of trust, which in turn is critical to sharing knowledge. These informal opportunities to interact with other people help individuals develop to respect and friendship which can also influence their behaviour (Nahapiet and Ghosal, 1998).



**Culture of the work environment**

The nature of knowledge, the motivation to share and the opportunities to share such knowledge, are all the factors that are influenced by the culture of the work environment. Organisational culture is increasingly being recognised as a major barrier to effective knowledge creation and sharing (De Long and Fahey, 2000). Organisations are essentially cultural entities (Cook and Yanow, 1993) and therefore, regardless of what organisations do to manage knowledge, the influences of the organisation's culture are much stronger (McDermott and O'Dell, 2001).

Culture is reflected in the values, norms, and practices of the organisation, where values are manifested in the norms that in turn shape specific practices (De Long and Fahey, 2000). De Long and Fahey (2000) identify certain aspects of organisational culture that influence knowledge sharing.- Culture shapes assumptions about which

knowledge is important, it controls the relationships between the different levels of knowledge (organisational, group, and individual) and it creates the context for social interaction. It is also culture that determines the norms regarding the distribution of knowledge between an organisation and the individuals in it (Staples and Jarvenpaa, 2001).

**Rationale**

Much have been written and published about KM, its implementation, challenges, successes and shortcomings (McDermont, 1999; Davenport de Long and Beers, 1998; McElroy, 2002). Knowledge sharing however has been identified as a major focus area for KM (Hendriks, 1999).

Through preliminary literature review it became apparent that there are different and quite confusing definitions on KM, which accounts partly to the lack of understanding KM on the part of organisations in practice (Moffett, McAdam and Parkinson, 2003).
This study aims to understand KM in the organisation, but would focus on the contribution of the knowledge infrastructure capabilities (technology, organisational structure and culture) to knowledge sharing at the DC.



While being recognised as an important pillar in KM efforts, reports also show that, in practice, knowledge sharing proves to be a significant barrier for effective knowledge management. Various factors have been identified as impediments for knowledge sharing; inadequate organisational structures, sharing-unfriendly organisational cultures, and denominational segmentation (Davenport and Prusak, 1998).

The reluctance to share and transfer knowledge from employee to employee (practical problems in practice that is a phenomena that requires studying), creates a challenging and sometimes unbearable situation which may hamper and/or affect the morale (like tension at work, unwillingness to participate in groups) of those concerned. This low morale might have a negative impact on performance.

The above problem can be remedied when there is a trust and secure feeling of ownership where knowledge can spread without any constraint (Hamidi et al., 2012: 309). They argue further, that an adequate infrastructure in organisations can ease the

communication and interaction for KS. Trust and justice are important because KS involves providing knowledge to another individual person or a collective group such as a team or community of practice with the expectations for reciprocity (Wu, Hsu and Yeh, 2007).

This is meant to suggest that there need to be an infrastructure that enables KS, and that the feeling of trust and security should be secondary to this (infrastructure). Knowledge should as such be seen as a critical organisational resource that provides a sustainable competitive advantage in a competitive and dynamic economy (Foss and Pederson, 2002).

Of importance is the issue whether or not knowledge workers are motivated to share their knowledge with others. According to Hendriks (1999) problems may occur when information systems, such as intranets are introduced to support knowledge sharing. The common motivation to introduce these technologies is that they may empower the individual knowledge worker by providing the tools to support and boost his or her knowledge-sharing skills (Tampoe, 1996).



Other reports however show that quite often the introduction of these systems are not used to their full potential (De Long, 1996). This suggests that if individuals are not motivated to share knowledge, it is not likely that they are motivated to use tools facilitating knowledge sharing. In view of the above, it is therefore the rationale for this study to determine whether technology (given the big organisational investments), organisational structure and culture contribute to knowledge sharing at the DC.

**Validation of the conceptual framework**

Table 1 below, is a list of KM infrastructure.

**Table1: KM Infrastructure**

| Authors | KM Infrastructure |
|---|---|
| Mills and Smith (2011) | Technology Infrastructure, Organisational Culture, Organisational Structure |
| Hamidi et al. (2012) | Organisational Culture, Organisational structure, Information technology |

| | |
|---|---|
| Ho (2009) | Information Technology, Culture, Evaluation, Strategy and Leadership |
| Aulawi et al. (2009) | Culture, Structure, People, Information Technology |
| Zaim et al. (2007) | Technology, Organisational Culture, Organisational Structure, Intellectual Capital |
| Lee & Lee (2007) | People, Structure, Culture, Information Technology |
| Yeh, et al. (2006) | Corporate Culture, People, Information Technology, Strategy and leadership |
| Wang (2005) | Culture, Information Technology and Leadership |
| Gold et al. (2001) | Technology, Structure, Culture |

From the above table, it can be seen that the different authors have put forward different sets of concepts. It is evident that there are three factors that exist in most references and which are considered relevant to this study. The three factors are; organisational culture, organisational structure and information technology. Wang (2005) refers to these elements as Critical Success Factors.

Joshi, Parmer and Chandrawat (2012), state that the top management of an organisation is directly responsible for shaping that organisation's culture, training, infrastructure, information technology, transparent rewards and recognition systems and the adoption of new management technologies such as KM. This clearly suggests that top management is responsible and have an important role to support KS practices.

**Statement of purpose**

The purpose of the study is:

- To understand how technology, organisational structure and culture contribute to the organisation's knowledge infrastructure capabilities; and

- To investigate how knowledge infrastructure capabilities contribute to knowledge sharing at the DC.

**Research aims and objectives**

Many authors wrote about KM, how it's implemented, its challenges, successes and shortcomings (McDermont, 1999; Davenport de Long and Beers, 1998; McElroy, 2002). Knowledge sharing, the rationale for this research however has been identified as a major focus area for KM (Wang and Noe 2010; Hendriks, 1999).

This study aims to understand how knowledge is created, shared and used within the organisation, though focusing on the contribution of the knowledge infrastructure capabilities (technology, organisational structure and culture) at the DC. Reports showed that KS proves to be a significant barrier for effective KM. Different factors have been identified as impediments for KS, including inadequate organisational structures, sharing-unfriendly organisational cultures, and denominational segmentation (Sunardi and Tjakraatmadja, 2013; Wong, 2005; Davenport and Prusak, 1998).



The reluctance to share and transfer knowledge from employee to employee are examples of practical problems in practice that is a phenomena that requires to be studied. This phenomenon creates a challenging and sometimes unbearable situation which can hamper and affect the employee's morale and which might have a negative impact on performance.

Whether or not knowledge workers are motivated to share their knowledge with others is of importance to this study. According to Hendriks (1999) problems may occur when information systems, such as intranets are introduced to support KS. The common motivation to introduce these technologies is that they may empower the individual knowledge worker by providing the tools to support and boost his or her KS skills (Tampoe, 1996).

Literature also suggests that quite often the introduction of these systems are not used to their full potential (De Long, 1996). This implies that if individuals are not motivated

to share knowledge, it is not likely that they can be motivated to use tools facilitating knowledge sharing.

As a result of this, it becomes the objective of this study to determine whether technology, organisational structure and culture contribute to knowledge sharing at the DC. Based on the above, the main objective of this study is to empirically investigate the factors that influence KS (technology, organisational structure and culture) within the DC. The purpose is to answer the main research question whether technology, organisational structure and culture contribute to the knowledge infrastructure capability of the DC.

The following are more objectives of the study:

- Understand what knowledge entails;
- Determine how knowledge is created, shared and used within the DC;
- Establish if there exist a KS culture at the DC;
- Understand KS between individuals in the organisation;
- Understand the perceptions of the extent to which technology, organisational structure and culture contribute to knowledge sharing at the DC;
- Identify the factors that would motivate KS at the DCs;
- Determine what enables and discourages KS;
- Recommend KS strategies for improving customer service.

**Research Questions**

In view of the preliminary literature review, and the preceding discussion, the primary research question can be formulated as follows:

- How does technology, organisational structure and culture contribute to the knowledge infrastructure capability?; and
- How does the knowledge infrastructure capability contribute to knowledge sharing at a large FMCG DC in the WC?

Technology, Culture and Organisational structure are three common concepts that are considered relevant for KS (Mills and Smith, 2011; Hamidi et al., 2012; Ho, 2009).

Gold, Malhotra and Segars (2001), suggested that these three concepts, be regarded as an organisation's Knowledge Infrastructure capability. Based on their research, the conceptual framework is as follows:

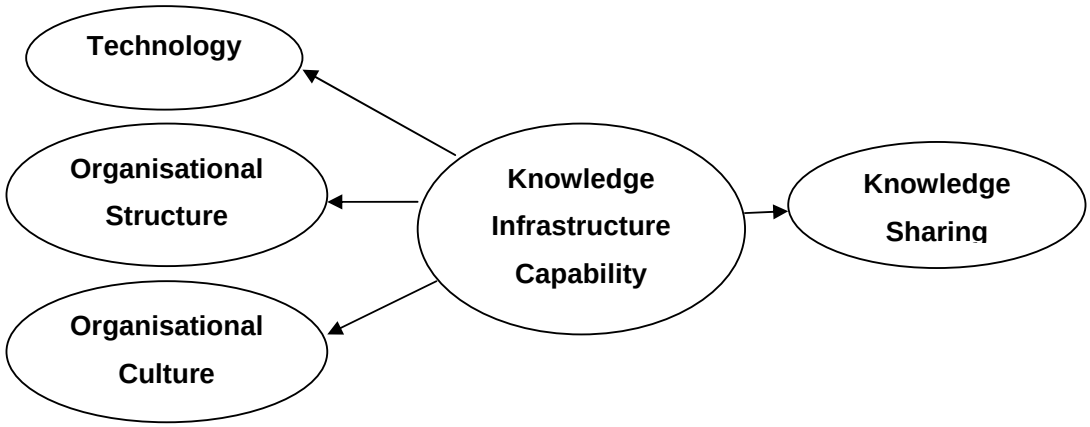



**Figure 1: Conceptual framework**

**Source: Adapted from Hamidi et al (2012), Mills and Smith (2011) and Gold, Malhotra and Segars 2001.**



## Research design and method

The line of the reasoning that followed in this research is based upon the literature reviewed, which suggest that knowledge is the most strategically significant resource of the firm (Kruger and Johnson, 2009). The research data was gathered through a 5 point Likert scale survey, which was completed by the entire population of 26 managers. Twenty four of the 26 managers (13 from the WC and 11 from Gauteng), were interviewed- all of them were selected either through self-selection or convenience sampling.

The interviews allowed and enabled the researcher to ask "how, when and where type" of questions. Structured interviews with 24 of 26 managers were used as they allowed for the assumption that one can understand how the world is known by requesting answers with questions from the unit of analysis.

Conducting both a survey and an interview allowed the researcher to have a more holistic view on knowledge sharing at the distribution centre. There were 40 survey questions, and based on the responses to this survey, probing questions were also

asked. Use was made of a 5 point Likert scale which ranged from strongly disagree to strongly agree. The responses were averaged to determine the outliers. The outliers - enabled triangulation which facilitated the reliability of this research.

Due to restrictions such as sensitivity, confidentiality and time, preliminary research attempts showed the unwillingness of certain employees to participate in the data collection process. This is why and where self-selection sampling became useful for the researcher. To further overcome the challenges, permission was sought from the General Manager (GM) at the DCs who gave permission to the employees to participate.

Consulted literature suggests that there are different views, lessons, definitions, benefits, disadvantages and implementations for KM (Sveiby, 2001; McDermont, 1999; Davenport, De Long and Beers, 1998; Barclay and Murray, 2000; and McElroy, 2002). Others argue that there is more than just technology that contributes to organisational effectiveness through KM (Gold, Malhotra and Segars, 2001).



In this regard theoretical inference would be employed to ensure external validity (validity relates to the data that has been collected, or the conclusions that have been drawn by using this method), which can assist in generalising across populations on the basis of logical reasoning. The findings of the study should however, be restricted to the DCs researched.

The researcher made use of self-selection and convenience sampling; these methods were chosen because of the secured access to the unit of analysis. The unit of analysis refers to the population under study, for the purpose of this research, 26 managers (people who had managerial oversight over others) were selected. The organisation studied operates 11 DCs across South Africa (SA) the two respective DCs were made up as follows:

**Table 2: Population**

| Dept. within the DC | No. of Managers at WC DC | No. of Managers at Gauteng DC |
|---|---|---|
| **National Supply** | 1 Person | |

| | | |
|---|---|---|
| **Chain** | | |
| **Administration and Warehousing** | 2 People | 3 People |
| **Milling** | 3 People | 3 Person |
| **Distribution** | 4 People | 2 People |
| **Human Resources** | 2 People | 1 Person |
| **Operations** | 3 People | 2 People |
| **Population** | **15 People** | **11 People** |

Due to the sizes of these DCs, the population and the sample in particular would consist of individuals from diverse backgrounds and cultures. The sample to be selected should therefore not only be representative of the managers at the DCs, but also to be representative of the ethnic and gender diversity in the two respective provinces.

In order to ensure a clean and error-free data set, the data capturing process was closely monitored to ensure that there were as few errors as possible. All the data was checked for capturing errors. Logical reasoning was applied in the analysis and interpretation stages of the research. The researcher maintained an objective stance during the analysis of all the research results. The findings of this study were captured and presented in the form of a case study.



**Contribution of the study**

The findings of this study can assist FMCG DCs to a better recognition and understanding of the way in which knowledge should be shared amongst employees. It can also help the management to implement an effective KS system, and possibly assist in developing more strategies for KS success in the future.

This research can also contribute to an understanding on how organisation, team, and individual characteristics influence individual KS. It can further assist in the understanding of the factors that influence KS between employees. This is important because at team and organisational levels, knowledge seems to be influenced by the

extent to which KS occurs between employees (Cabrera and Cabrera, 2005; and Gupta and Govindarajan, 2000).

**Limitations of the study**

It is important to note, that this research should be viewed as an exploratory study to understand how KS happens at the DCs, and to provide more insight. The findings of the study are limited to the particular DCs or can – only be generalised to DCs of similar size within the FMCG industry, because of the following:

The entire population amounted to 26 people because the DCs were small ones. Given that knowledge exists at all levels of the organisation (Ipe, 2003), and the research was limited to "Managers" only, is a limitation on its own. Ideally people from all levels within the organisation, should have been selected for the research.

In the study, conducted by Gold, Malhotra and Segars (2001), multiple-item measures were used, since single item measures generally frame concepts narrowly. Multiple-item measures are generally thought to enhance confidence that the constructs of interest are being accurately assessed and the measurement of the variable will be more consistent (Gold, Malhotra and Segars, 2001: 192).



They (Gold, Malhotra and Segars) also used a Likert scale which provides the advantage of standardising and quantifying relative effects. Due to the small population (26 Managers), the researcher couldn't use multiple-item measures. The researcher could however, have done correlation and or factor analysis. Correlation analysis is a commonly used technique for investigating the relationship between two quantitative variables. The survey questions used however have been tested in other research. The language was only simplified to make sense in the context of the DCs.

**Layout of the study**

This research is subdivided into five chapters. An outline of every chapter is provided below; and this is intended to give the reader a guideline on the structure and content of each chapter.

**Chapter 1** Introduces the study, and gives a brief background to the research. Other aspects discussed are: the problem statement, the objectives and the significance of the study. The chapter briefly discusses the research methodology, including the scope and limitations.

**Chapter 2** This chapter covers the Literature consulted, and aims to sketch a background of Knowledge Management and- sharing, its definitions and introduces the reader to the current status of Knowledge Management and- sharing, with particular reference to SA's private sector. It also looks at the nature of knowledge, how it's created, and then discusses the need for the sharing of such knowledge at the DC. The other concepts (Technological KM infrastructure, Cultural KM infrastructure and Organisational KM infrastructure) are also discussed here.

**Chapter 3** Looks at the Research Methods and design of the study, providing the motivation for the selection of the sample, and the research instruments (5 point Likert scale survey and structured face to face interviews).

**Chapter 4** In this chapter, the study findings from both qualitative and quantitative methods are presented, interpreted and discussed.



**Chapter 5** Will discuss and analyse the research findings, as well as comparing it to the literature consulted**.**

**Chapter 6** Presents the conclusions drawn from the analyses and some recommendations are given.

**Key ethical considerations**

Approval was sought from the University of the Western Cape' (UWC) Senate before commencing the study. The key informants were asked to participate through a letter, which was addressed to each one of them. All the participants were assured of their right to participate, decline or indeed withdraw from the study at any time should they feel uncomfortable.

All the authors and any other data sources that were used were referenced and properly acknowledged in order to respect the intellectual property rights. At best all

the work will be my own. The researcher was led by the UWC's Code of Ethics when engaging in the collection, analysis and dissemination of data related to this study.

**Summary of key arguments**

**Table 3: Summary of key arguments**

| Source | Argument |
|---|---|
| Earl 1996, Chait 1999, Gallager and Hazlett 2004, Kruger and Snyman 2005 | KM requires social interaction, suggesting that organisational culture is crucial. |
| Fahey and Prusak 1998 | Organisations are prone to making errors with KM. |
| Mesmer-Magnus and DeChurch, 2009 | KS is positively related to reductions in production costs, faster completion of new product development projects and team performance. |
| Wang and Noe, 2010 | Culture is important for an organisation's long-term success of KM initiatives. |
| Sunardi and Tjakraatmadja, 2013 | KM is no longer the exclusive domain of large enterprises; smaller organisations have placed a significant consideration to the promising value of implementing KM program |
| Ipe, 2003 | Knowledge in organisations is dynamic in nature and is dependent on social relationships between individuals for its creation, sharing, and use. |
| Cabrera and Cabrera (2005) | KS between employees and within and across teams allows organisations to exploit and capitalise on knowledge-based resources. |
| Becerra-Fernandez and Sabherwal, 2001 | The recognition of knowledge as the key resource of today's organisation affirms the need for processes that facilitate the creation, sharing, and leveraging of |

| | |
|---|---|
| | individual and collective knowledge. |
| Call, 2005 | KM is less of a technical problem, and more of a cultural one- KM will not succeed based solely on technology. |
| Bartol and Srivastava, 2002 | There is growing realisation that knowledge sharing is critical to knowledge creation, organisational learning, and performance achievement |
| Alam et al (2009) | Effective KM implementation is only possible with effective KS. |
| Wigg (1997) | The overall rationale of KM is to maximise the organisation's effectiveness and profits from its knowledge possessions and to renovate them persistently. |
| Nonaka et al., 2000 | Organisations create and define problems, develop and apply knowledge to solve the problems. |
| Gold, Malhotra and Segars, 2001 | Culture is the most significant hurdle to effective KM. |
| Wilson, 2002 | KM is burdened with the managing of people and information |
| Hartanto (2012)<br>Baron and Armstrong (2007) | KM in any organisation cannot be separated from organisations' human capital, as actors of any KM implementations. |
| Nonaka and von Krogh (2009) | A crucial and difficult step in the organisational knowledge process is the conversion of tacit knowledge into explicit knowledge. |



**Summary**

This chapter has presented the direction for the entire research plan. It has also provided the context within which the study was determined. It presented a description

of the research problem, and the research objectives, as well as research questions. A summary of the research design and methods was discussed, as well as the ethical challenges and requirements that were attended to .in addition to the danger of bias and the ways to avoid it.

Definitions of the terms addressed in the study, limitations and scope are set out and the final part of the chapter provides an insight into the other chapters that constitute the thesis. The next chapter presents the Literature consulted.

## CHAPTER 2: LITERATURE REVIEW

### Introduction

The previous chapter presented the purpose for this study. This chapter looks at the Literature consulted, relating to the current state of Knowledge Sharing (KS) as a major focus area for Knowledge Management (KM) relating to the research, and as such deals with the literature consulted that is of importance to the study.

Consulting the Literature is important, since the solution which this study wishes to provide, might have been suggested by other researchers. Considering this possibility, it is important for prospective researchers to understand what already exists.

### Knowledge Management background

Individuals use the knowledge they have in their daily activities at work (Lam, 2000), and unless the organisation can facilitate the sharing of this knowledge with others, it is likely to lose this knowledge when individual employees leave (Gupta and Govindarajan, 2000).



Even if individuals stay with the organisation, the full extent of their knowledge may not be realised and utilised unless there are opportunities for the individual to share that knowledge with others in the organisation (Weiss, 1999). Based on the above, it can be said that knowledge sharing flourishes within an organisation that facilitates the sharing process and at the same time creates opportunities for sharing.

According to Wiig (1997) KM dates back to 1975. KM can be traced back to an organisation called Chaparral Steel- one of the first organisations to explicitly adopt a knowledge-focused management practice. This suggests that KM has been part of business for some time. It often happens, that knowledge is managed without employees even realising it. , preliminary discussions with relatively senior staff the DC to be studied indicates that they are involved daily in the KM process without even knowing it.

According to Wilson (2002) KM did not occur until 1986 and until 1996, there were only a few occurrences in each year. From the beginning, there was confusion over what the term “KM” meant since only a few academic papers bothered to define it

(Wilson, 2002). The confusion regarding the meaning of KM is also visible in the DC. To many the term is new and often unheard of. Others attempt to define it based on the meaning of the two words, “knowledge” and “management” but not necessarily on how it should be applied.

A lot has happened since 1975. In 1987, the first book relating to KM was published in Europe (Sveiby and Lloyd, 1987), 1990 the first book on the learning organisation in Europe was also published (Garratt, 1990) and in 1994, the International KM Network published a KM survey of 80 Dutch companies (Spijkervet and van der Spek, 1994). Yet in 1996, the European KM Association was started. These events suggest that KM has been evolving.

The status of KM has improved over the years. In the current decade knowledge as a competitive asset has been accepted universally and interest in KM continues to grow and most companies are organising their businesses in projects. It has become a regular approach to businesses and has now been developed into a vital part of many organisations’ business strategies (Ajmal, 2009: 1).



It is on these bases that Ajmal (2009; 2) observes that things have improved to such an extent, that implementing KM has been reported to be remarkably successful in terms of financial savings, revenues generated or the level of user acceptance. KM is no longer the exclusive domain of large enterprises as smaller organisations have placed a significant consideration to the promising value of implementing KM program (Sunardi and Tjakraatmadja, 2013).

KM is one of the fastest growing areas of corporate spending (Call, 2005). In view of this, there is pressure on businesses to manage knowledge. The DC under study is part of such a business- which realised that KM is important and subsequently started to focus on it.

**Knowledge Management**

The recognition of knowledge as the key resource of today’s organisations affirms the need for processes that facilitate the creation, sharing, and leveraging of individual and collective knowledge (Becerra-Fernandez and Sabherwal, 2001; Drucker, 1993).

More and more organisations are attempting to set up KM systems and practices to effectively use the knowledge they have (Ipe, 2003). That is perhaps the reason why knowledge and the capability to create and utilise it (knowledge) are considered to be the most important source of a firm's sustainable competitive advantage (Nonaka and Toyama, 2003). Academics however, seem to be far from understanding the process in which organisations create and utilise knowledge.

It is important for academics, and all business stakeholders to distinguish between "information" and "knowledge", since they are two different concepts, often used interchangeably. Wilson (2002) argues that knowledge is an ambiguous, unspecific and dynamic phenomenon, intrinsically related to meaning, understanding and process, and therefore difficult to manage. KM he argues further, is not burdened with the managing of people or information.

**Current status of KM**

Initially, KM was adopted only in large, multinational and international companies (Wong, 2005). Between 2001 and 2005, Wang (2005) argues that it became a widespread business discipline as it is no longer the concerns of large organisations only. Migdadi (2009) notes that a better understanding of the critical success factors for KS implementation would be needed in order to ensure success in any organisation.



Despite the increased interest, companies are still not expert enough in handling their knowledge assets gained during the projects and most of KM initiatives may still fail because of the technological, cultural, knowledge content and project management reasons (Chua and Lam, 2005).

Researchers like Mesmer-Magnus and DeChurch (2009) and Lin (2007) suggest that KS is positively related to reductions in production costs, faster completion of new product development projects, team performance, firm innovation capabilities, and firm performance including sales growth and revenue from new products and services.

Renzl (2008) is of the view that knowledge can be considered as a source of power and superiority. With this in mind, Renzl recommends incentives to motivate employees to share their knowledge. Both KM researchers and practitioners acknowledge the importance of an organisation's culture for the long-term success of KM initiatives (Wang and Noe, 2010).

As a result of the potential benefits that can be derived from KS, many organisations have invested considerable amounts of time and money into KM initiatives including the development of KM systems, which use state-of-the-art technology to facilitate the collection, storage, and distribution of knowledge (Wang and Noe, 2010: 115).

The most important challenge for today's and for the next decade's organisations is to anticipate the change from an industrial era to a knowledge economy era. In the knowledge economy era, knowledge should be considered as the key source of competitive advantage for firms. Managing knowledge as such should be considered essential to the sustainability of any enterprise (Sunardi and Tjakraatmadja, 2013: 1).



According to Yao et al. (2007) the managing of knowledge is not straightforward, and many organisations still struggle with it. KM practices are in progress, and organisations learn through trial and error. To progress on this learning curve, organisations need to go through a number of stages, namely: ad-hoc, formal, expanding, cohesive, integrated and embedded KM (Hansen *et al*., 1999; Davenport & Völpel, 2001; Skyrme, 2002):

- The formal stage refers to the level at which KM is acknowledged as a formal project. At the DCs where this research is conducted, KM is at the formal stage, employees seem to understand the importance of their own knowledge, and that of others.

- The expanding level on the other hand involves the increased use of KM practices across various areas of the organisation. When looking at the organisation where the research is conducted as a whole, it is evident that KM programs are at an expending level. At Head Office level, there is increased use of KM practices which are rolled out throughout the eleven DCs.

- During the cohesive stage, there exists a degree of organisation of KM activity, suggesting that knowledge can be shared across departmental boundaries more easily. With regard to the organisation being studied, it operates through 4 different divisions. This study therefore focuses on one division only, and specifically on one DC within the selected division. There seems to be a degree of organisational KM activity as operations; for example they are currently being streamlined through a process of reconstruction.

- The integrated stage involves building common structures, such as a corporate portal to allow employees access to necessary organisational knowledge.

- In the embedded stage, KM is accepted as part-and-parcel of the daily tasks and it becomes integrated easily into the background. From the interviews conducted, it became clear that at the DC level, the organisation is far from this level- suggesting that there is scope for the DCs to exploit KM practices.

- 

If properly supported, KM can enhance the performance of organisations and the workers at the same time. The benefit of KM in the job training (a form of knowledge sharing), is that it ensures a better skilled and trained workforce, which are more productive and efficient within the DC environment. This suggests that knowledge management and sharing are necessary for organisations to sustain themselves.



To this effect, the private sector is making strides in adopting new management approaches and techniques (Cong and Pandya 2003). Management concepts, such as enterprise-resource planning (ERP), total quality management (TQM) and business-process re-engineering (BPR) among others, are some of these new approaches (McAdam and Reid 2000). KM is no exception – in that it has followed similar developmental trends in the private sector.

Certain Multinational Corporations (MNCs), such Ernst and Young, Hewlett Packard, and Xerox have also adopted KM practices to enable knowledge-sharing (Riege, 2005). At these organisations' employees have access to the knowledge base of the company (Buckman, 1998). Most of these organisations have moved from the information-management phase to information and knowledge sharing.

**KM in SA's private sector**

KM practices within the private sector all over the world have progressed. The status of KM implementation in SA reveals a significant progress of knowledge-sharing beyond the organisational boundaries in large organisations (Kruger and Johnson, 2010). Some organisations recognise the importance of KM to the extent of formulating KM strategies. Among these organisations are Construction giants who are reporting higher levels of KM implementation. This suggests that KM in S A is well recognised for its contribution to service and product improvement in the private sector.

Unilever, as an example of a private organisation that has achieved considerable benefits through KM is one of the largest consumer goods companies in SA. It acknowledges knowledge as an important resource that can assist in achieving and maintaining a competitive advantage. The organisation has invested in various KM initiatives, such as knowledge workshops, training programmes, and the utilisation of best practices (Pos *et al.* 2009).



It is argued that these initiatives ensured that the company managed to maintain market leadership in a number of brands such as Omo washing powder and Lipton Ice Tea. The organisation under study also invested in training and education of its staff. For their Financial year 2012/2013, they budgeted an amount of R5 million for programs aimed at educating their work force. These investments are meant to assist in creating competitive advantage and the maximisation of shareholder profits.

**The nature of knowledge**

Knowledge by its very nature exists in both tacit and explicit forms. These two characteristics of the nature of knowledge; tacitness and explicitness of knowledge, and the value attributed to knowledge have a significant influence on the way knowledge is shared within organisations. Tacit knowledge can be thought of as the know-how that is acquired through personal experience (Nonaka, 1994).

It is therefore not easy to code and cannot be communicated or used without the individual who is the knower. Explicit knowledge therefore has a natural advantage over tacit knowledge in terms of its ability to be shared relatively easily among

individuals. It should be noted however, that regardless of whether knowledge is tacit or explicit, the value attributed to it also has a significant impact on whether and how individuals share it (Ipe, 2003).

Nonaka and Toyama (2003) argue that knowledge creation is a synthesising process through which an organisation interacts with individuals and the environment to transcend emerging contradictions that the organisation faces. This is to suggest that, instead of just solving problems, organisations create and define problems, develop and apply knowledge to solve the problems, and then further develop new knowledge through the action of problem solving (Nonaka et al., 2000).

**The knowledge creation process and motivation to share**

During the knowledge creation process, according to Vygotsky's (1986) socio- cultural and historical theory, contexts are important for individuals because such contexts give the basis for one to interpret information to create meanings. Gold, Malhotra and Segars (2001) agree with Vygotsky- emphasising that the most significant hurdle to effective KM is organisational culture.



Knowledge is "intimately and inextricably bound with people's egos and occupations" and does not flow easily across the organisation (Davenport et al., 1998, p.45). According to Stenmark (2001), people are not likely to share knowledge without strong personal motivation. Motivational factors that influence knowledge sharing between individuals can be divided into internal and external factors. Internal factors include the perceived power attached to the knowledge and the reciprocity that results from sharing. External factors include the relationship with the recipient and rewards for sharing.

**Knowledge as power**

The increasing importance given to knowledge in organisations, and the increasing value attributed to individuals who possess the right kind of knowledge are conducive to creating the notion of power around knowledge. If individuals perceive that power comes from the knowledge they possess, it is likely to lead to knowledge hoarding instead of knowledge sharing (Davenport, 1997; Gupta and Govindarajan, 2000).

According to Brown and Woodland (1999) individuals use knowledge for both control and defence. In a competitive environment, withholding knowledge from those considered competitors is often regarded as being useful to attaining one's goals (Pfeffer, 1980). Power politics is therefore an important aspect of KS in organisations (Weiss, 1999).

Gold, Malhotra and Segars (2001) and Vygotsky (1986) argue that interaction between individuals is essential, especially during the innovation process. Gold, Malhotra and Segars (2001) suggest that the organisation should have a culture where the employee's interaction is encouraged, both formally and informally, in order for relationships, contacts, and perspectives to be shared by those not working closely together.

In the case of an organisation, like the one under study, which operates through eleven different DCs, this type of employee interaction and collaboration is important, especially when attempting to transmit tacit knowledge between individuals, or convert tacit knowledge into explicit knowledge- thus transforming it from individual to organisational level.



Knowledge creation according to Nonaka and Toyama (2003) starts with Socialisation: defined as the process of converting new tacit knowledge through shared experiences into day-to-day social interaction. Since tacit knowledge is difficult to formalise and often time-and space-specific, it can only be acquired through shared direct experience, such as spending time together or living in the same environment. In the case of the organisation under study, operating through eleven DCs, this might be difficult- especially across the eleven DCs.

An organisation's ability to effectively leverage its knowledge is highly dependent on its people, who actually create, share, and use the knowledge. Leveraging knowledge is only possible when people can share the knowledge they have and build on the knowledge of others. KS thus is really just the act of making knowledge available to others within the organisation (Ipe, 2003).

**The need for knowledge sharing at the DC**

**Communication flow**

These DCs are expected to deliver customer orders on time and in full, within 48 hours, to an address anywhere in their regions. There is an inherent need, to communicate properly in order to eliminate errors and mistakes. In some cases, the customer may place emergency orders that requires immediate attention and implementation. The DC has done a good job of documenting the processes and capturing the knowledge, required to serve these customers. This doesn't eliminate the fact that, there remains a need for KM to improve the existing processes to assist in the management and sharing of knowledge, and improve communication between all the stakeholders.

**Loss of organisational knowledge**

KM is crucial to any organisation, because of reasons such as high staff turnovers amongst logistic professionals and administrative workers, the prospective loss of employees as a result of an ageing workforce. It is a challenge to organisations, to retain the knowledge and expertise of the knowledge worker within their organisation.



Often, employees gain a wealth of knowledge, while working in a certain position. Once employees retire, or get a transfer or leave an organisation, the accumulated knowledge also leaves – unless proper measures are taken to retain it within the organisation. In addition, inadequate training, and employees duplicating work by reinventing the wheel further interferes with and hinders the success of knowledge-development and its retention.

**Lack of information and knowledge**

Very often, particularly during the phase of employee initiation- employees experience a situation of information overload. They may be inducted about the organisation, within two days, and are expected to understand the way the organisation operates. In the case of the organisation being under study- nothing or very little induction takes place. It is thus important; to make sure that information is available for employees, and when it is required, technology can play a pivotal role in this regard. The ability to archive documents or display information on an intranet is some of the initiatives employed at the DC.

**Skills shortage**

The scarcity of expert skills can put a lot of strain on any organisation. This can be caused through inadequate training or technological developments. The result however can be pressure on a small number of employees that leaves them with no time for informed interaction with their colleagues.

This is to suggest that, there is a need to tap knowledge from the experts and professionals to ease the problem of skills scarcity within the organisation and the DC in particular. A report presented in the Sunday Times on 22nd February 2009 stated that SA is among the biggest losers in the global race for skills, which highlights the necessity for organisations to retain the skills of their staff. This should be done by investing in staff skills, along with ensuring that personal development training programmes bring about staff retention, which is important – especially in the war for talent (Jackson, 2009).

Managing the flow of this expert knowledge is one issue on which the organisation needs to focus, especially when creating a knowledge base. If implemented, KM could provide a continuous organised way to capture the accumulated individuals' expertise before a particular project is completed. A knowledge base could also assist in the documentation and distribution of best practices.



**Advances in the use of ICT**

New technologies have contributed to the accumulation of vast amounts of information – often housed in disparate files and databases that are not easily available for decision-making (Koenig and Srinkantaiah, 2004). Some technologies: the Internet, the intranet and the World Wide Web supply workers with massive quantities of information (Dave and Koskela, 2009). The ability to utilise this information is largely restricted by a lack of understanding regarding the context and purpose, or the value, of the information.

The storage of important explicit knowledge in many locations impedes the accessibility and efficient decision-making. ICT can assist in the formal integration of explicit knowledge by simplifying the process of coding, communicating, assimilating,

storing, and retrieving such knowledge (Dave and Koskela, 2009). However, ICT is often not adequate as a knowledge-management system, since people and not technology are critical to the flow of tacit knowledge – through mentoring, training, and other similar processes (Nissen, 2006; Polanyi, 1967).

For this reason, it is crucial for organisations to consider the use of social processes that are primarily informal, and others that are more formal, to facilitate the transfer of knowledge. This could include on-the-job training, meetings, transfer of personnel, and personal discussions, as well as consultations to exchange knowledge (Syed-Ikhsan and Rowland, 2004).

**Knowledge Infrastructure capabilities**

Sveiby (1990) suggests that KM consists of two tracks: the IT track, which is information management, and the people track, which is the management of people, thus lending substance to Wilsons (2002).



**Technology**

It is indisputable that one of the key enablers for implementing KM is IT. Its capability has evolved from merely being a static archive of information to being a connector of a human to information and one of human to another. IT can enable rapid search, access and retrieval of information, and can support collaboration and communication between organisational members (Wang, 2005: 269). The existence of an advanced ICT infrastructure is a necessary precondition for successful knowledge exchange (Karlsen and Gottschalk, 2004).

Technology comprises a crucial element of the structural dimensions needed to mobilise social capital for the creation and sharing of new knowledge (Gold, Malhotra and Segars, 2001: 187). Technology together with organisational structure and culture are known as the organisation's infrastructure capabilities, which is important for achieving knowledge sharing.

In view of this, Wang (2005) says that there are a wide variety of information technologies that support KM and which can be applied and integrated into an organisation's technological platforms; like business intelligence, content and

document management, portals, data mining, workflow and e-learning. The DCs studied, make use of all of the above- including video conferencing, except e-learning.

Broad organisational networks, such as communities of practice, enable KS, since the ties among individuals within social networks can facilitate knowledge transfer and enhance the quality of information received (Wang and Noe, 2010). Employees at the two DCs are also making use of applications such as Facebook, twitter and WhatsApp, in addition to the Internet and e-mails to communicate.

Information and communication technology (ICT) can enhance knowledge sharing by lowering temporal and spatial barriers between knowledge workers, and improving access to information about knowledge (Hendriks, 1999).

Call (2005) argues that technology can assist a well-established KM initiative, but knowledge sharing as a major focus area for KM - cannot succeed based solely on technology. KM in the bigger scheme of things is here to help organisations do what they do better. It (KM) is there to connect information and people, and people and people. Call (2005) also points out that it is important to realise that KM is less of a technical problem, and more of a cultural problem.



It should be noted, that the existence of technology (hardware and software) cannot guarantee that employees engagement with them. Employees may refuse because of lack of user-friendliness and proper training on certain application. IT and other KM resources and initiatives need to be user-friendly and underpinned by ongoing training and support (Goodman, 2007; 7).

According to Hendriks (1999), the most prominent ICT tool for facilitating knowledge sharing is an intranet; since ICT can be effective in lowering at least some barriers involved in knowledge sharing. Hendriks identifies three barriers as follows: temporal distance, physical distance and social distances. Hendriks also proposed solutions to these barriers, for the purpose of this research however, attention should be given to the third barrier- social distance.

Overcoming this barrier according to Ruggles (1997) may be the most difficult. ICT may be of assistance in the form of tools facilitating social translation for example. In addition to this, ICT may facilitate the access to information bases storing data that are relevant beyond the individual level. As an example, Hendriks (1999) considers electronic document management, document information systems and document imaging systems.

Thirdly; ICT may be introduced with the purpose of improving the processes involved in knowledge sharing. A distinction can be made between ICT that aims at supporting knowledge sharing processes versus partially taking over or directing these processes (Hendriks, 1999).

Finally, ICT may help locate the various elements relevant to the process of knowledge sharing. This is to suggest that ICT does not address the knowledge to be shared itself, but knowledge about the knowledge to be shared (Meta knowledge). Meta-knowledge in one form, refers to the location and accessibility of relevant information bases



Following up on Hamidi et al (2012), Mills and Smith (2011), Gold, Malhotra and Segars' (2001) and McAdam and Parkinson' (2003) this study aims to understand how technology, organisational structure and culture contribute to organisational effectiveness. Particular focus is placed on the contribution of culture to this effectiveness, especially since organisations invest in technology to the detriment of culture.

Technological investments in the form of systems (programmes) and hardware - according to Gold, Malhotra and Segars often happen at the expense of culture. During discussions with the organisation's Information Officer (IO), it appeared as if this (investment in technology at the expense of culture) might be the case for the organisation, throughout its eleven DC's.

The organisation under study, invested heavily into Systems Applications and Products (SAP) in 1997. They were also the first South African company that implemented the full suite of Virsa access control application. Recently the

organisation invested in Business Intelligence (BI) and Business Warehouse (BW) programmes.

Drucker (1969), one of the first people to write about the idea of the “knowledge society” and the “knowledge economy”, disputed the notion that knowledge can be managed. He argues that knowledge sits between two ears. To him it is about what the individual workers do with the knowledge they have- he argues further that when employees leave a company, their knowledge goes with them, no matter how much they shared before departure.

It is however, the culture at the organisation that after a staff member resigns; a proper handover of all business activities has to be done. The challenge is that when staff resigns with the intention to work for competing DCs, they are requested to leave immediately. As a result, all KS related activities are not recorded correctly and so posing operational challenges. The next paragraph highlights some cultural issues regarding KS at the DC.



**Culture**

Culture is made up of the following elements; trust, team oriented work, and KS (Park, et al., 2004). Trust and collaboration in the organisation could be considered as the important elements for KS (Hamidi, et al., 2012). According to Schein (2004), an organisation’s culture should be recognised as an important factor that can enhance the organisational effectiveness and success.

Lindner and Wald (2010), refer to culture as by far, the most important factor to success. Culture is formed when the employees practice the appropriate action in their work routines (Moh’dAl-adaileh, 2011). Almahamid et al (2010) states that organisational culture defines the core beliefs, values, norms and social customs that govern the way individuals act and behave in an organisation. This clearly highlights the importance of organisational culture for KS.

Given the reality that different employees determine the culture of an organisation, organisations are exposed/subjected to their cultures being dependent on individuals and able to change which affects the organisational effectiveness.

A number of cultural dimensions that are likely to influence KS have been identified, but trust seems to have attracted the most attention in research (Wang and Noe, 2010). A culture emphasising trust and innovation is conducive to KS. It appears to Wang and Noe (2010) that the importance of organisational culture lays in its ability to have a direct effect on employees' KS behaviour as well as an indirect effect through influencing managers' attitudes toward KS.

KM requires an environment where an individual's knowledge is valued and rewarded (Santosous and Surmacz, 2001). The organisation's culture must provide a "climate of continuity and trust" (Pan and Scarbrough, 1998). It is important for employees to know and trust that sharing with one another enhances employment status and should not undermine the business's need for them.

**Knowledge sharing and the factors that influence it**

Sharing implies that the sender does not relinquish ownership of the knowledge; instead, it results in joint ownership of the knowledge between the sender and the recipient. Davenport (1997) defines sharing as a voluntary act and distinguished it from reporting.



In a strict sense, knowledge cannot be shared (Hendriks, 1999). Knowledge is not like a commodity that can be passed around freely, it is tied to a knowing subject. To learn something from someone else, i.e. to share his or her knowledge, an act of reconstruction is needed. It takes knowledge to acquire knowledge and, therefore, to share knowledge (Hendriks, 1999).

From a similar stance, Hendriks (1999) argues that knowledge sharing presumes a relation between at least two parties, one that possesses knowledge and the other that acquires knowledge. The first party should communicate its knowledge consciously and willingly or not in some form. The other party should be able to perceive these expressions of knowledge and make sense of them.

Choi and Lee (2003) argue that KM is important for organisations and they propose that KM methods be categorised into four (Passive, System oriented, Human oriented

and Dynamic) styles. These styles are important and relevant to the study as it indicates to what extent the organisation and the DC in particular complies with KM. It also gives an indication on which component/aspect i.e. systems or human the DC should focus on most.

The business as a whole and the DC in particular is enjoying Senior Management support. The DC realised the importance of technology in the process of managing knowledge, and has subsequently invested huge amounts of money, in upgrading both that and the information systems it employs. The DC's management is familiar with the term KM, even though it seems that their personal definitions and understanding of KM differs.

It appeared to the researcher that KM is new to the DC, even though those interviewed would like to argue otherwise. This assumption is based on the fact that their upgrading of technology and information systems, which they regard as core for their DCs were 45% complete as at August 2012. This percentage has been determined, through arguing that the implementation is divided into a number of phases, each phase completed contributing to the overall total 100%.



A key to understanding the success and failure of KM within organisations is the identification and assessment of preconditions (Proper infrastructure and process capabilities) that are necessary for the effort to flourish (Gold, Malhotra and Segars 2001). The existence of these preconditions and how it contributes to organisational effectiveness is looked at.

Worth noting is that there is no general approach to KS that has been commonly accepted by businesses all over the world. Businesses including the DC's differ from each other in terms of how they manage knowledge. This study does not attempt to compare the DC's KM style with that of another.

Effective KS differs from KS in that it changes the way the organisations and individuals function. It changes the way individuals go about their daily tasks, and this correlates to changes in the organisation's values and beliefs (Michaelson, 2001).

Furthermore, the objectives of KM should be identified, in order to manage it (KM) properly. According to Davenport and Prusak (2000) KM systems should capture high value information that relate to a specific task or a "recognised business problem that relates to knowledge… Attacking these problems, identifying their knowledge component, and using the business value of solving them as justification for knowledge efforts are all good ways to get around in KM"

To make the enterprise act as intelligently as possible to secure its viability and overall success and to otherwise realise the best value of its knowledge assets. Another objective according to Call (2005) is to promote the effective sharing and transfer of intellectual assets.

For an organisation to be able to reach its goals (I.e. the effective sharing and transferring of intellectual assets) it has to build, transform, organise, deploy, and use its knowledge assets effectively, suggesting that the overall purpose of KM is to maximise the enterprise's knowledge-related effectiveness and returns from its knowledge assets and to renew them consistently. Organisations should note that knowledgeable people are innovative and able to create and deliver products and services of high quality.



**Knowledge Management challenges**

In order to keep the body of knowledge alive and vibrant, in an effort to secure the enterprise' well-being and long term viability, knowledge should be managed systematically. From a managerial perspective, Wiig (1997) notes that systematic KM comprises four areas of emphasis as follows:

The top-down monitoring and facilitation of knowledge related activities: In the case of the DC their mandate and KM initiatives flow from Head Office. The support shown to KM can also be seen through Senior Managements' support of it (KM).

Looking at whether the organisation invests into technology and the culture- on DC level, which appears to be the case, is looked at. The renewal, organising, transferring of knowledge assets and the leveraging (using) of these knowledge assets to realise value is also looked at.

For years, companies strived to manage knowledge effectively, the primary motivation being improved business performance (Choi and Lee, 2003); in addition KM methods vary depending on knowledge types and organisational core competence.

Not all KM methods are equally effective (Choi and Lee, 2003) - business managers should align methods with their corporate culture. Knowledge managers are being challenged by the difficulty of how to employ KM methods, because it is still unclear how they can improve corporate performance.

Studies in KM according to Moffett, McAdam and Parkinson (2003) indicate that there has been an over-emphasis on technology to the exclusion of adequate people/quality planning programmes. An understanding of these issues in practice and academia is currently hindered by a paucity of systematic empirical research, addressing the relationship between cultural and technological aspects of KM (Moffett, McAdam and Parkinson, 2003).



The lack of understanding of KM by organisations in practice, researchers in the academia, and the slow pace of systematic empirical research seem to suggest that more research needs to be done on the topic of knowledge sharing which is the rationale for this study on the benefits of knowledge sharing at the DCs.

**Knowledge sharing motivators**

The motivation for knowledge sharing is derived from Maslow's needs hierarchy (Maslow, 1954). Maslow's theory has been widely criticised, for three reasons: because of the assumed strict hierarchy in needs, because it does not address the question of how behaviour is affected within hierarchy and because of its weak empirical foundation (Hendriks, 1999).

Stott and Walker (1995) and Tampoe (1996) refer to Maslow's theory to indicate that motivation for knowledge comes from his three highest hierarchical levels. Their implication is that knowledge workers do not share knowledge because of money or to improve their relations with their co-workers. Their motivation rather comes from their desire for self-actualisation.

Several content-oriented motivation theories can be found in the literature as well (McGregor, 1960; Herzberg, 1968). These theories when combined can present a smorgasbord of individual motivation factors, like: the wish to earn wages, to expand mental or physical energy, to contribute to the production of goods or services, the desire for social interaction and social status (Vroom, 1964), the wish to survive and enjoy, belong, play, the desire for recognition, respect (Maccoby, 1998), the need for achievement, affiliation and power (McClelland, 1971).

**Conceptual framework**

The conceptual framework for this study is based on the works of Hamidi et al (2012), Gold, Malhotra and Segars (2001) and McAdam and Parkinson (2003), which is that organisation culture, technology and organisational infrastructure are key elements of an organisation's KM infrastructure. Organisational culture, technology and organisational structure are discussed as key elements of the organisation's infrastructure capabilities. In addition to this, the organisation's process capabilities are also discussed (Gold, Malhotra and Segars, 2001).



**Culture of the work environment**

Culture according to Malhotra and Segars (2001) is perhaps the most significant hurdle to effective KM. The shaping of culture is central in an organisation's ability to manage its knowledge more effectively. For the purposes of culture, interaction between individuals is essential in the innovation process.

The nature of knowledge, motivation to share and opportunities to share, are all factors that are influenced by the culture of the work environment- the culture of the subunit and/or the culture of the organisation at large. Organisational culture is increasingly being recognised as a major barrier to effective knowledge creation, sharing, and uses (De Long and Fahey, 2000).

Employee interaction should be encouraged, both formally and informally, so that relationships, contacts, and perspectives are shared by those not working side by side. This type of interaction and collaboration is important when attempting to

transmit tacit knowledge between individuals or convert tacit knowledge into explicit knowledge, thereby transforming it from individual to organisational level.

Smirich (1983) defines culture as something the organisation “has” and can control or direct at will. It is also seen as something the organisation “is”. In 1986 Kilmann et al. described culture as something that lies between what is formally agreed and what actually takes place. The same principle they argue, can be applied to KM. First, an organisation can have a knowledge culture where KM is expressed through the application of various knowledge initiatives, tools and techniques. Second, an organisation can be a knowledge organisation.

Than argues Davenport and Prusak (1998) knowledge oriented culture challenges people to share knowledge throughout the organisation, and a culture of confidence and trust is required to encourage the application and development of knowledge within an organisation.

People or employees in an organisation usually conform to the culture of the organisation. Changes in an organisation’s culture places demands on employees to change their mind sets and break from past traditions.



Culture suggests what to do and what not to do regarding knowledge processing and communication in organisations (Davenport, 1997). An important component of culture in organisations is corporate vision (Gold, Malhotra, and Segars, 2001; Leonard-Barton, 1995). Gold et al. (2001) point to the fact that a corporate vision not only provides a sense of purpose to the organisation but also helps to create a system of organisational values.

**Technology**

ICT can enhance KS by lowering temporal and spatial barriers between knowledge workers, and improving access to information about knowledge (Hendriks, 1999).
According to Demerest (1993) KM needs to find a way to capture, use and transfer knowledge across the organisation so as to improve efficiency and increase competitive edge. KM is concerned with embracing a diversity of knowledge sources

and cultivating knowledge wherever it resides. KM according to Davenport and Prusak (1998) is enabled by technology which is a key contributor to the field.

Technology as one of many factors has also been identified as an impediment for knowledge sharing, together with inadequate organisational structures, sharing unfriendly organisational cultures, and denominational segregation (Davenport and Prusak, 1998).

Technology comprises a crucial element of the structural dimension needed to mobilise social capital for the creation of new knowledge and sharing (Gold, Malhotra and Segars, 2001). Through the linkage of information and communication systems in an organisation, previously fragmented flows of information and knowledge can be integrated. These linkages can also eliminate barriers to communication that naturally occur between different parts of the organisation.

BI technologies can enable a firm to generate knowledge regarding its competition and the broader economic environment. As technological developments become more advanced in application and utilisation, it is emerging to those employees who have access to technologies that detect and manage business opportunities. Such employees have the distinct advantage of exploiting market shifts.



Martin (1998) emphasises this point, arguing that “Human expertise is amplified by computers. Software is an encapsulation of knowledge. Knowledge that is constantly renewed and enhanced is the primary source of competitive advantage”.

It should be noted, that technology alone cannot lead to a KM culture (Davenport and Prusak, 1998). A well designed, standardised, fully implemented technical infrastructure for KM however, can improve information processing capabilities, knowledge discovery, project collaboration and rapid decision making within organisations.

An important component of culture, according to Gold, Malhotra and Segars (2001) is corporate vision- suggesting that the DC should have a vision. This vision should provide employees with a needed sense of purpose that transcends everyday

activities. The vision should generate a clear organisational purpose, and should bring about the necessary changes in the organisation so that it can achieve its desired future goals. To operationalise this vision, it should be a clear statement of the future and desired direction of the organisation- it can also be complemented by a system of organisational values.

**Cultural motivators for knowledge sharing**

Technology does affect the motivation for KS both directly (as a hygiene factor) and indirectly (by influencing the motivation factors) (Hendriks, 1999). Providing access to information, improving the process and locating knowledge carriers and or seekers refer to factors that when absent, may deter KS (Hendriks, 1999). This suggests that the presence of these actually motivate KS.

For instance, people may be reluctant to share knowledge if the effort for finding interested parties is too great. An intranet may significantly reduce this effort. On the other hand, it seems implausible to sustain the argument that knowledge-sharing behaviour is directly motivated by technological applications



People do not share knowledge because of the intranet, or any other application facilitates it. There are three factors which can influence this sharing: First, individuals may differ in their appreciation of technology as well as in which motivators can affect them (Stott and Walker, 1995). For instance, which factors motivate people are among others related to the stage in their career.

This suggests that the way in which particular technological applications influence KS behaviour of individuals is also likely to differ from one individual to another. Another well-known fact by Hendriks (1999) is that people are reluctant to share knowledge if mistakes are not tolerated or if certain groups are identified with knowledge which may be indicative of a lack of openness in the KS culture.

Similarly, no matter how motivated they may be, people do not share knowledge with those they do not trust (Boone, 1997). Depending on the reasons why knowledge is shared, the process of knowledge sharing may take on a different form.

**Organisational structure**

All Organisations need to ensure that they have appropriate organisational structures, to guarantee KS. There are two different perspectives of structure- centralisation of authority and formalisation of tasks (Gholipour et al., 2010).

The difference between centralisation and formalisation is the approach of managing the organisation (Hamidi, et al., 2012). Centralisation is highly concentrated at the management of authority whereas formalisation refers to standard operating procedures in decision making. Centralisation helps to coordinate organisational activities which usually result to the decreases of employees' flexibility (Hamidi, et al., 2012).

With the above in mind, Hamidi et al, (2012), Mills and Smith (2011), Gold, Malhotra and Segars (2001) all argue that an organisational structure is important in the leveraging of technological architecture. This suggests that it is important for organisational structures to be designed for flexibility (as opposed to rigidity) so that they can encourage sharing and collaboration across boundaries within the structure of a DC. Thus, Grover and Davenport (2001) indicate that an organisational structure is important in encouraging KS among employees since it defines the core beliefs, values, norms and social customs that govern the way individuals act and behave in an organisation (Wang, 2005).



The thinking behind this study captured in the theoretical framework below is that Technology, structure and Organisational Culture are the key components of an organisation's Knowledge Infrastructure. The Knowledge process capability of an organisation which is made up of Acquisition and Conversion processes, as well as Application and Protection processes complements the Infrastructure, resulting in organisational effectiveness.

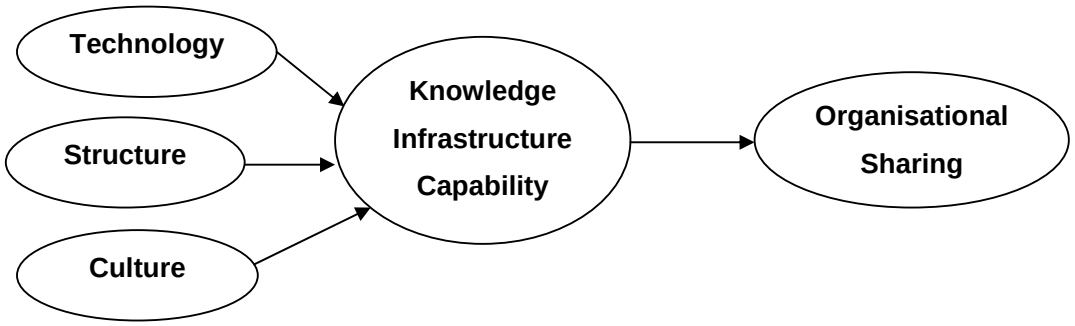



**Figure 2: Theoretical framework**

**Source: Adapted from Hamidi et al (2012), Mills and Smith (2011) and Gold, Malhotra and Segars 2001.**

The above mentioned theoretical framework as adapted from Hamidi et al (2012), Mill and Smith (2011), Gold, Malhotra and Segars (2001) informs the basis of the theoretical framework for this study. Technology, structure and culture would be looked at separately, as was done by Hamidi et al (2012) and Gold, Malhotra and Segars (2001) since the distinction between the three is clear.

This theoretical framework as shown in Figure 2; draws heavily on the literature consulted. In order for all of the research questions to be answered, the framework is extended to help determine whether the organisational effectiveness or lack thereof can result in operational success or failure.



## Research questions

The questions needed to be answered by this research are as follows:

- How do technology, culture and organisational structure contribute to knowledge infrastructure capabilities? And;
- How does the knowledge infrastructure capability contribute to knowledge sharing?

## Conclusion

This chapter began by giving an overview of the Literature consulted and the concepts, including KS and KM. It specifically looked at the background of KM, its

current status- with particular reference to South Africa's private sector, and the challenges.

The chapter also looked at the nature of knowledge, explicit versus tacit, how knowledge is created and at what motivates people to share such knowledge. Given the topic of this study, this chapter also discussed the need for KS at the DC, and the KM infrastructure capabilities (Technology, Culture and Structure). These capabilities are identified as crucial to the achievement of KS at the DC. The next chapter looks at the methodology- how the research was conducted.

**Summary of key arguments**

**Table 4: Summary of key arguments**

| Source | Argument |
|---|---|
| Hamidi et al (2012) | Organisational managers and leaders must fully understand the need for KS in the organisation and commit to provide proper channels to facilitate KS in the organisation. |
| Siemsen et al (2008) | There is a need for KS strategy which must be supported by top management and which requires a good KM infrastructure. |
| Nonaka and Takeuchi (1995). | KM calls for managing organisational knowledge as a corporate asset and harnessing knowledge creation and sharing as key organisational capabilities |
| Lam (2000)<br>Gupta and Govindarajan (2000) | Individuals use the knowledge they have in their daily activities at work, and unless the organisation can facilitate the sharing of this knowledge with others, it is likely to |

| | |
|---|---|
| | lose this knowledge when individual employees leave. |
| Weiss (1999) | Knowledge sharing flourish within an organisation that facilitate the sharing process, and at the same time create opportunities for sharing. |
| Ipe (2003) | Regardless of whether knowledge is tacit or explicit, the value attributed to it also has a significant impact on whether and how individuals share it. |
| Davenport et al. (1998) | Knowledge is "intimately and inextricably bound with people's egos and occupations" and does not flow easily across the organisation. |
| Stenmark (2001) | People are not likely to share knowledge without strong personal motivation. |
| Hendriks (1999) | ICT can enhance knowledge sharing by lowering temporal and spatial barriers between knowledge workers, and improving access to information about knowledge. |
| Santosous and Surmacz (2001) | KM requires an environment where an individual's knowledge is valued and rewarded. |
| Valmohammadi (2010) | The absence of transparent rewards and recognition systems can hamper KS. |
| De Long & Fahey (2000) | Organisational culture is increasingly being recognised as a major barrier to |

| | |
|---|---|
| | effective knowledge creation, sharing, and uses. |
| Gold, Malhotra and Segars (2001) | It is important that organisational structures are designed for flexibility (as opposed to rigidity) so that they encourage sharing and collaboration across boundaries within the organisation. |

Based on the above literature review, technology, culture and organisational structure will be used as three of the constructs for this study. The other two constructs are: KM infrastructure capability and knowledge sharing.

## CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

### Introduction

This chapter describes the research design and methodology used in the investigation of KS practices in a Fast Moving Consumer Goods DC in the Western Cape. The chapter begins by stating the research assumption. It further starts by discussing the philosophical underpinnings and identifying the specific paradigm that guides the selection of the research methods used in the study. This is followed by a discussion of the different research methods and the research design selected for the study. A further discussion includes the data-collection methods, validity and reliability issues, as well as the ethical considerations.

### Research assumptions

Lincoln (2005) argue that it is a research philosophy, a belief about the manner in which the data on a phenomenon should be gathered and analysed. The different philosophies guide the researcher in understanding the interrelationship of the main elements of research, and include the methodology and the research methods. These different approaches bring about a better understanding that enables the researcher to avoid confusion. It also helps researchers to recognise contributions made by others, whilst at the same time defending their own positions and beliefs.



Ontology, epistemology and methodology are the three philosophies that can be applied in this research. According to Glesne (2011) ontology is involved with understanding the nature of reality. It (ontology) deals with the question of whether the world exists, and in what form that is (Potter, 1996). Epistemology refers to the potential means of obtaining knowledge of a social reality, like what it is that a researcher needs to understand (Glesne, 2011).

Methodology, which is what this chapter is about, is defined by Bryman (2008) as the procedure employed to discover knowledge while carrying out the research. The significance of methodology in a research is to help identify the practices and theories of those who use different types of method.

Research provides the foundation for reports about and representations of “the other” (Denzin and Lincoln, 2000). In this context, the above authors argue that research

becomes an objective way of representing the dark-skinned other to the white world. It can thus be said, that research can be used in an effort to make sense of the "world" in which other people operate.

The objective of this study is to use the information to be gathered from the survey and interview responses to assist organisations of similar size and processes to see how to exploit knowledge sharing opportunities.

**Research method**

There are two types of research - quantitative and qualitative. The battle lines between the two were drawn in the 1960's (Semali and Kincheloe, 1999). Quantitative scholars relegated qualitative research to a subordinate status in the scientific arena. The work of qualitative scholars is termed unscientific or only exploratory or subjective (Huber, 1995 and Denzin, 1997).

In response, qualitative researchers extolled the humanistic virtues of their subjective, interpretive approach to the study of human group life (Battiste, 2000). Qualitative researchers stress the socially constructed nature of reality, the intimate relationship between the researcher and what is studied, and the situational constraints that shape inquiry.



The different ways of using the term "qualitative research' often create confusion (Devers, 1999). Sometimes the term denotes a paradigm that competes with quantitative research and the philosophical perspective with which it is associated (i.e., positivism). Building on the work of Kuhn (1970), Patton (1990), they define a paradigm as a world view, a general perspective, and a way of breaking down complexity of the real world. As such, paradigms are deeply embedded in the socialisation of adherents and practitioners: paradigms tell them what is important, legitimate, and reasonable.

At other times, the term "qualitative research" refers to a diverse set of methods for conducting social research that are appropriate for answering particular types of research questions and, therefore, are capable of being integrated with quantitative research. According to Becker (1986) both qualitative and quantitative researchers

“think they know something about society worth telling to others, and they use a variety of forms, media and means to communicate their ideas and findings”.

Quantitative research was characterised as positivistic, deductive, hypothesis-driven, particularistic, variable-based, objective, and outcome-oriented. In contrast, qualitative research was characterised as phenomenological (i.e., an investigation of the meaning of experience to people and of the process by which they arrive at that meaning), theory-building, holistic, case based, subjective, and process-oriented (Devers, 1999).

For the purposes of this study, the researcher would make use of both Quantitative and Qualitative research. Qualitative, since it crosscuts disciplines, fields, and subject matters (Denzin and Lincoln, 2000). It also allows the researcher to study things in their natural settings, attempting to make sense of or interpret phenomena in terms of the meanings people bring to them.

In their now classic work entitled “Beyond Qualitative Versus Quantitative Methods”, Reichardt and Cook (1978) argue that the advantages of combining qualitative and quantitative methods should compel disciplines (in their article, the field of evaluation research) to move beyond the traditional qualitative versus quantitative debate to an acceptance of both methods. The advantages they describe include the multiple purposes for which research is conducted, the complementary aspects of quantitative and qualitative methods, and triangulation (the use of more than one method to verify and validate results).

The key to understanding qualitative research, according to Merriam (2002), lies with the idea that meaning is socially constructed by individuals in interaction with their world. The world, or reality, is not fixed, single, agreed upon, or measurable phenomenon that it is assumed to be a positivist, quantitative research.

Qualitative researchers are interested in understanding what those interpretations are at a particular point in time and in a particular context. Learning how individuals experience and interact with their social world, the meaning it has for them, is considered an interpretive qualitative approach (Merriam, 2002).

**Different types of qualitative research**

With the basic interpretive and descriptive qualitative study, the researcher seeks to discover and understand a phenomenon, a process, the perspectives and worldviews of the people involved, or a combination of these. Data are collected through a 5 point likert scale survey, interviews and observations (Merriam, 2002). Grounded theory research, according to Merriam (2002) emphasises discovery with description and verification as secondary concerns. Researchers in this mode build substantive theory, which is distinguished from grand or formal theory.

The case study is an intensive description and analysis of a phenomenon or social unit such as an individual, group, institution, or community. The case is a bounded, integrated system (Stake 1995 and Merriam, 1998). By concentrating upon a single phenomenon or entity (the case), this approach seeks to describe the phenomenon in depth. The unit of analysis, not the topic of investigation, characterises a case study (Merriam, 2002).



This type of qualitative research stands apart from other types defined above, since it is the unit of analysis that determines whether a research study, is a case study (Merriam 2002). And in fact, since it is the unit of analysis that defines the case, other types of studies can be and sometimes are combined with case study. At best however, according to Denzin and Lincoln (2000), through case study, interview, and ethnographic methods, researchers can gather descriptive materials that can be tested with experimental methods.

According to Denzin and Lincoln (2000) Qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices turn the world into a series of representations, including field notes, interviews, conversations and even memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world.

The qualitative researcher needs to use the aesthetic and material tools of his or her craft, deploying whatever strategies, methods, and empirical materials are at hand (Bekker, 1998). The choices regarding which interpretive practices to employ are not

necessarily made in advance. According to Nelson et al. (1992) “choices of research practices depend upon the questions that are asked, and the questions depend on their context”, what is available in the context, and what the researcher can do in that setting.

According to Flick (2002) Qualitative research is inherently multi-method in focus. Flick (2002) argues that the use of multiple methods or triangulation reflects an attempt to secure an in-depth understanding of the phenomenon in question. Objective reality can never be captured. We know a thing only through its representations. Triangulation is not a tool or a strategy of validation, but an alternative to validation (Flick, 2002).

**Why qualitative research**

Fundamental theoretical and substantive issues including organisational, and policy decision makers’ need for knowledge and information in new and rapidly evolving areas, are increasing the demand for qualitative research. Qualitative research and methods are well suited to address many of these challenges (Devers, 1999).



Both qualitative and quantitative researchers are concerned with the individual’s point of view. Qualitative investigators however, think they can get closer to the actor’s perspective through detailed interviewing and observation (Denzin and Lincoln, 2000). According to Merriam (2002) the researcher is the primary instrument for data collection and analysis. Since understanding is the goal of this research, the human instrument, which is able to be immediately responsive and adaptive, would seem to be the ideal means of collecting and analysing data.

The researcher can expand his or her understanding through nonverbal as well as verbal communication, process information (data) immediately, clarify and summarise material, check with respondents for accuracy of interpretation, and explore unusual or unanticipated responses (Merriam, 2002).

Qualitative researchers are more likely to confront and come up against the constraints of the everyday social world. They see this world in action and embed their

findings in it, they believe that rich descriptions of the social world are valuable (Denzin and Lincoln, 2000).

The product of a qualitative enquiry is richly descriptive. Words and pictures rather than numbers are used to convey what the researcher has learned about a phenomenon. There are likely to be descriptions of the context, the participants involved, and the activities of interest. In addition, data in the form of field notes and participant interviews- are always included in support of the findings of the study (Merriam 2002; Denzin and Lincoln, 2000).

Furthermore, this method involves the studied use and collection of a variety of empirical materials- case study; personal experience; introspection; and interview- that describes routine and problematic moments and meanings in individuals' lives. The method also assists in answering those questions that stress how social experiences are created and given meaning (Denzin and Lincoln, 2000). Qualitative studies provide a rich and in-depth examination of the organisational context in which knowledge sharing occurs (Wang and Noe, 2010).



**Research Methods in KM and KS studies**

A lot of KM researchers made use of qualitative research designs. Cong *et al.* (2007) conducted an empirical investigation on KM through a qualitative case-study approach. Interviews and a questionnaire were used as the main methods for the data collection. Squier and Snyman (2004) conducted qualitative research using a mixed case-study design in SA on KM in three financial services organisations.

A "Knowledge Management Infrastructure" study, done on the Malaysian Banking Practice by Hamidi et al, in 2012, used a questionnaire, which was sent through e-mail. In a 2005 study conducted by Wong, investigating the critical success factors for implementing KM in small and medium enterprises, respondents perceptions were captured using a six point Likert scale. The surveys were sent to 100 addressees, with follow up letters to those who did not replied within the given deadline. In total 18 usable replies were received (18 percent response rate), which was considered to be normal and reasonable.

Ajmal (2009) looked at the critical factors for successful KM initiatives in Project management by using a five-point Likert-type scale (survey), ranging from strongly disagree to strongly agree. The population for the study was 400 project managers and project assistant managers- a total of 41 questionnaires were answered with a response rate of 10.25 percent.

Sunardi and Tjaraatmadja (2013) also collected data from 60 samples of two Indonesian Medium-sized Manufacturing Enterprise, of which one was a leader in food Manufacturing. The two researchers used a five point Likert scale ranging from strongly disagrees to strongly agree.

A lot of the studies included in the literature reviewed were qualitative studies that used interviews, observation, and or archival documents analysis to answer their research questions. A few of these qualitative studies also collected quantitative data for analysis.



Gold, Malhotra and Segars (2001) on whose work the conceptual framework is drawn, did a quantitative study. For their study, the data was collected through formal survey of 1000 senior executives. The items they measured were randomly dispersed throughout the questionnaire and were anchored by 7 point Likert scales ranging from 1 = strongly agree to 7 = strongly disagree.

Given the methods used in similar researches, and the scope of this study, the researcher opted for a qualitative method. The population for this study was 26 respondents, all of whom were managers from Junior Level up to Executive. The population was purposely selected, to get to an “informed” and “educated” sample. The aim was to get respondents who have supervisory duties over others and who also observed sharing behaviour amongst employees. These respondents would also be able to explain the concept of KS, if probed.

Instead of a 7 point Likert scale, a 5 point Likert scale was used- this was further enhanced through structured face to face interviews. According to Cameron and Price (2009) it is essential to select the right research methods. This study also looks at documentary evidence, like Key Performance Indicator (KPI) documents.

The data collected through survey instruments were used to look at whether there was consensus or disagreement amongst respondents, and to support the informants' views gained from the qualitative interviews. In general, the data were analysed by way of qualitative methods.

**Case Studies**

There are different definitions for case studies in the literature. A case study is defined as an investigation carried out to answer specific research questions that seek a wide variety of different evidences from the case setting (Gillman, 2000). Yin (1994) defines a case study as an empirical enquiry suitable for investigating the existing phenomena in a real-life environment where the boundaries between the environment and the phenomena are not clearly evident (Yin, 1994).

Welman, Kruger and Mitchell (2010) state that in a case study, research is directed at understanding the uniqueness and idiosyncrasy of a particular case in all its complexity. The objective is usually to investigate the dynamics of some single bounded system, typically of a social nature, such as a family, group, community, participants in a project, institution and practice (for example the testing of drug usage at schools).



Yin (1994) argues that case studies allow for an in-depth understanding of the phenomenon (whether it's a process, person, object or event) and its setting.

Case study method should be considered, when the study aims to answer "how" and "why" questions (Yin, 2003). In this study the researcher would like to answer the question: "How do technology, culture and organisational structure contribute to KS?"

Case studies Yin (2003) can also be applied to answer questions where researchers cannot manipulate the behaviour of those involved in a study. For the purposes of this study, the researcher refrained from asking leading questions. In order to reduce the risk of participant bias in this study, the researcher selected a DC, with survey and interview respondents with no personal attachment.

**Different types of case studies**

Yin (2004) observes that there are three recognized classes of case studies, as follows: descriptive, explanatory, and exploratory. Descriptive case studies are often employed to explain events and their specific contexts. Explanatory case studies try to find a connection in an event with the outcomes, and those that are appropriate for exploring causality. This method examines the data closely: both at the surface level and at a deeper level – with the intention of fully researching the phenomenon in the data.

Case studies are often perceived as similar to the qualitative research. It is important to note that case-study evidence can be based on purely quantitative data from surveys, or on purely qualitative data from Interviews, or a combination of both data sets (surveys and Interviews). Quantitative elements can be part of a case-study approach. Both the qualitative data-collection method and analysis (which are concerned with words and meanings) and the quantitative methods (concerned with numbers and measurement) may be used (Yin, 1994).



For the purposes of this research, a combined approach employing quantitative (survey) and qualitative (unstructured interviews) approaches was used to gather the evidence despite the stance displayed in favour of the qualitative approach.

Quantitative methods were used to look for consensus and disagreement amongst the employees at the DC. The qualitative approach was employed to seek an in-depth understanding of how knowledge sharing is enabled at the DCs. By employing both quantitative and qualitative measure, the researcher aimed to create triangulation. The parallel application of numerous research methods and sources allowed for data triangulation, and thus contributes to the improved internal validity of the study (Yin, 1994).

**Strengths of case studies**

The case study method involves detailed, holistic investigation. It involves an entire division within the organisation, and can utilise a range of different measurement techniques (the case study researcher is not limited to any one methodological tool). Data can be collected over a period of time, and it is contextual (relative to a specific

industry like- FMCG). The histories and stories that can be told about the organisation are also something that can be assessed and documented, not just empirical data like the stories and the anecdotes about how the company interacts with the marketplace can be used.

**Limitations of case studies**

Case studies involve analysis of small data sets, such as one out of eleven DC's that may lead the researcher to gain some insights about trends in relevant industries. A case study might be used to generalise a similar DC in the FMCG industry. The data is "real life" in the sense that an organisation has been chosen as the source of the data. However, the study involves "small-n" data and therefore conventional empirical techniques cannot be used, or where they are used, they may have limited application as there may not be enough data to meet requirements for statistical significance.

In this study, the population and subsequent sample is very small (26 people respectively), such that statistical analysis is not really going to add value. Based on this, a case study approach is deemed appropriate for this study.



**Research design**

Refers to the plan according to which the researcher approaches research participants (subjects) to collect information from them. It describes what should be done with the participants, with a view to reaching conclusions about the research problem (Welman, Kruger and Mitchell, 2010). Merriam (2002) states that the design of a qualitative study focuses on interpretation and may include shaping a problem for this type of study, selecting and analysing data, and coming up with the findings.

An understanding of this process is important for assessing the rigor and value of individual reports of research. The philosophical and theoretical perspectives that inform the use of a particular qualitative methods (e.g., observation, interviews), and the extent to which qualitative methods are accepted as legitimate modes of inquiry, shape the debate in any field (Devers, 1999).

After having identified the research problem, and having asked questions about it, the next step in the design of a qualitative study is to select a sample from which data will

be collected. Since qualitative enquiry, according to Merriam (2002) seeks to understand the meaning of a phenomenon from the perspectives of the participants, it is important to select a sample from which the most can be learned.

Based on their (Gold, Malhotra and Segars) 2001 study, and the similarities with their study the respondents profile considered as an ideal for this study is Managers, up to the General Manager. These respondents use knowledge for the accomplishment of their tasks and can also provide commentary of the organisation's knowledge sharing activity.

Following on the sample selection, the data collection process began. There are different methods, but for the purpose of this study, a 5 point likert scale, ranging from strongly disagree to strongly agree have been filled out by the entire population. The responses were averaged out and probing questions were asked. As a result of the mall population (26 people) in all were selected for the survey, but the researcher only managed to interview 24 of them.

Interviews were structured, where specific questions and the order in which they were asked was determined ahead of time. This is advised, where one has topic areas to explore but neither the questions nor the order are predetermined (Merriam, 2002).



According to Gold, Malhotra and Segars (2001) the use of key organisational informants has been an effective approach in many research contexts. In their empirical study they found that the key informants are normally senior members in their organisations. Based on this, the data was collected from a population of twenty six Managers.

**Target Organisation: Fast Moving Consumer Goods DC in the Western Cape**

The organisation is made up of five different divisions (recently reduced to four) with each having its own distribution centres. These different divisions receive their KM- and as a result knowledge sharing mandates from a central point- the Head Office. The division to be studied consists of eleven different distribution centres, located all over SA, each of which is following Head Office mandate.

This mandate is to deliver in full and on time, within 48 hours after the order is placed to a customer situated in your region. In this regard, all different production plants need to deliver to the DC, where the products are stored, filled and delivered to customers. This mandate gets relaxed, when the DCs experience stock shortages (the result of inefficient production plants) thus preventing it from delivering in full. Each DC service a specific geographical area.

The DC to be studied is located in the WC- the research data is thus collected from this particular DC. An alternative DC within the same organisation which operates within Gauteng was also selected as another site in order to compare the results. The eleven different DCs are being managed by two GMs, one responsible for Operations and the other for Commercial business. As a result of the nature of this research, the Operations GM formed part of the population.

The selection of the additional DC (located in Gauteng), was meant to enable the researcher to compare the responses. The DC in the Western Cape is more than 50% White, whilst the DC in Gauteng is more than 50% Black. These two DCs are similar in size and head count- 15 and 11 managers respectively.



The population (the total collection of all units of analysis about which the researcher wishes to make specific conclusions) and the sample (subset of the population) are the Managers and the General Managers at the DC who have access to and use of the organisation's knowledge. Two different types of sampling methods were used, to enhance and speed up the data collection process.

**Study Sample**

1. Self-selection sampling, where the researcher allowed the Managers (unit of analysis) to identify their desire to take part in the research.

With this approach, the GM informed all in the sample population about the research and encouraged them to participate- the researcher then collected data from those who responded.

2. Convenience sampling involves selecting haphazardly those cases that are easiest to obtain for the sample (Welman, Kruger and Mitchell, 2010).

Written permission was granted by the GM who sent out a written notification of the research to the sample (unit of analysis) before the interviews took place. In this communication, respondents were asked to participate. This process and line of communication improved the response rate since some respondents raised concerns with participating in this study during office hours.

These two methods (self-selection sampling and convenience sampling) are beneficial, since it's cheap, and can accelerate the data collection process. The latter sampling method (convenience sampling) was decided based on secured access granted to the researcher to the unit of analysis. Preliminary discussions and meetings had already taken place between the researcher and some of the key respondents.

**Evaluation criteria**

The criteria traditionally used to evaluate both qualitative and quantitative research in the basic and applied sciences- are familiar to researchers and according to (Devers, 1999) are as follows:



**Internal validity:** The degree to which findings correctly map the phenomenon in question. Welman, Kruger and Mitchell (2010) state that internal validity describes the degree to which changes in the dependent variable are indeed due to the independent variable rather than to something else.

**External validity:** The degree to which findings can be generalised to other settings similar to the one in which the study occurred. To enhance the external validity, the researcher used a tested survey questionnaire, and slightly changed the grammar, to make sense within the DC. A number of people were consulted (Academic supervisor, colleagues and even one of the Managers in the Research population) to evaluate the instruments in relation to language, structure, methodological error, and content and general presentation. The feedback gathered was taken into consideration and incorporated accordingly.

The qualitative questions in the interviews were generated from the quantitative survey questionnaire (Gold, Malhotra and Segars, 2001) that was used to probe. A lot of attention was paid, to ensure that the two sets of questions complimented each other,

and that what the survey questionnaire missed out was picked up by the Interview questions. Please see examples of these questions in Appendices D, E and F.

**Reliability:** The extent to which findings can be replicated or reproduced by another investigator. According to Denzin and Lincoln (1994) the objective of reliability is to decrease random errors and biases in the study, which can enable researchers to arrive at the same insights, if they were to conduct the study along similar lines again. During the course of the research, the population was unchanged, which made the answers from respondents valid and reliable. The research answers also highlighted the factors that enabled KS.

**Objectivity:** The extent to which findings are free from bias. The philosophical origins of these criteria (including the assumptions about the social world that accompany their adoption and use) and the relationship between the philosophical perspective and methods are somewhat less familiar. According to Devers (1999) are the philosophical perspectives, or paradigm, that primarily underlies these criteria positivism.



The meaning of positivism he argues is complex, but in essence it is a philosophy that proclaims the suitability of the scientific method to all forms of knowledge (natural and social) and gives an account of what that method ideally entails. Qualitative researchers argued that there were fundamental limits to the extent to which the methods and procedures of the natural sciences could be applied to the social world. Underlying this view was Devers' (1999) ontological assumption that reality is dynamic, contextual, and socially constructed.

Unlike inanimate objects, people think, have feelings, communicate through language, and attribute meaning to their environment, and, at least superficially, have different beliefs and personal characteristics. Moreover, social science theories are unlikely to apply across time and place and cannot be the sole sources of hypotheses. Rather, scientific knowledge must be developed through inductive as well as deductive empirical study (Devers, 1999).

The philosophical and theoretical perspectives associated with qualitative research are diverse and shape all aspects of research design, including the goal of the research and formation of the research question, the data collection and analysis methods used, and the style of the final, written report (Devers, 1999).

Cresswell (1998: 11) identifies five distinct “traditions of inquiry”, which he defines as “an approach to qualitative research that has a distinguished history in one of the disciplines that has spawned books, journals, and distinct methodologies that characterise its approach” One example of a qualitative research tradition is ethnography.

In qualitative research Yin (1994) and Guba (1981) noted that for the purposes of validity and reliability, four criteria is suggested to ensure trustworthiness.

1. Credibility instead of internal validity;
2. Transferability instead of external validity and generalizability;
3. Dependability instead of reliability, and;
4. Conformity instead of objectivity.



To ensure the trustworthiness as per recommendation by Shenton (2004) in this qualitative research- triangulation (looking at Key Performance Indicator (KPI) documents), probing questions (Interview questionnaire was used to probe respondents on their responses in the survey questionnaire), and the rewording of the questions- to make sense to respondents on the DC level was done.

In view of the above discussion, this study adopted qualitative and quantitative (i.e. a mixed method approach) research methods; and therefore credibility, transferability, dependability and conformability were considered for the qualitative data. Establishing trustworthiness from the quantitative data was not possible, as a result of the small population and subsequent sample size.

**Data Collection tools**

**Surveys**

Hamidi et al, (2012) used a questionnaire, whilst Gold, Malhorta and Segars (2001) employed a 7 point Likert scale. Their studies form the basis on which the conceptual framework of this study is based. For the purpose of this research, a 5 Point Likert scale ranging from strongly disagrees to strongly agree was designed to look for consensus and disagreement amongst the respondents only.

According to Welman, Kruger and Mitchell (2010) survey questionnaires may be used to obtain the following types of information from the respondents:

- Biographical details (age, educational qualification, income, and so on). For the purposes of this study, the survey was used to capture this data, under the heading “Demographical data”. This is important to capture, as it helps the researcher to understand why certain respondents answer certain questions in a particular way. The researcher found that respondents aged between 51 and 60 years are more likely to share knowledge, than their counterparts aged between 31 and 40 years.
- Opinions, beliefs, and convictions (about any topic or issue, for example the present state of the economy) (Welman, Kruger and Mitchell, 2010). Respondents’ opinions were sought regarding whether they believed that senior managers support the idea of knowledge sharing- in this particular study.



Based on the above, it is justified for this research to have made use of a survey questionnaire, as part of the data collecting instruments. The study however, focused more on the interviews as a means of substantiating the findings from the survey.

**Interviews**

Face to face interviews were conducted, once the survey were analysed and the sample selected and informed accordingly. Introducing the respondents to the survey, allowed them to familiarise themselves with the content, and this speeded up the actual data collection process, especially when probing during the face to face interviews.

Merriam (2002) suggests that the use of more than one method of data collection enhances the validity of the findings. The research also made use of participant observation since it is the best technique when an activity, event, or situation is observed first hand, when a fresh perspective is desired, or when participants are not able or willing to discuss the phenomenon under study (Merriam, 2002).

The collection and analysis of data was done at the same time. The researcher began with the analysis of data after the first survey responses were received. According to Merriam (2002) this allowed the researcher to make adjustments along the way, even to the point of redirecting data collection, and to "test" emerging concepts, themes, patterns and categories against subsequent data.

This is exactly why the mixed methods were used with a stronger bias towards qualitative research- to probe for certain answers. To wait until data is collected is to lose the opportunity to gather more reliable and valid data.



**Data analysis**

Once the data was collected it was analysed. According to Yin (1994) and Christensen at al. (2011) data analysis is a procedure used to examine, categorise and tabulate the evidence to address the initial proposal of a study, which enables a researcher to obtain valuable information from the raw data. This study used Logical reasoning to analyse the textual data obtained from the interviews.

Logical reasoning is a form of thinking in which premises and relations between premises are used in a rigorous manner to infer conclusions that are entailed (or implied) by the premises and the relations (Nunes, 2012). Different forms of logical reasoning are recognised in philosophy of Science and artificial intelligence. It (logical reasoning) can simply be demonstrated as: if 1+1=2, than 2-1 should =1. This type of reasoning ensures consistency (Meilicke, Stuckenschmidt and Tamilin, 2008). Meilicke, Stuckenschmidt and Tamilin (2008) argue further that this kind of reasoning can be used to detect incorrect correspondences. Following the data collection process, was the write up of the research.

The researcher considered the audience for the research. Given that this research is to be read by colleagues and other researchers- who would want a detailed description of (the methods used) the methodology in order to assess the study's contribution to the field, they will be considered as the audience. The findings of the research would be shared through rich, thick descriptions using words that can persuade the reader of the trustworthiness of the research.

The researcher required 15 minutes with each respondent, to have the survey filled out. This had the benefit of identifying which respondent agreed or disagreed with a particular statement, allowing the researcher to probe in detail during the interview. Once all the Western Cape DC's surveys were done, the researcher started data collection at Gauteng DC in the same way as was done in the Western Cape. These responses were tabulated to give percentages for each response- as indicated in Appendices D and E.



**Problems encountered in the data collection process**

Two of the senior Executives, only managed to fill out the survey questionnaire, and were unable to sit down with me to do the interview. It was difficult to get hold of them, as a result of their busy schedules. They were the only two people out of twenty six that the researcher was unable to interview.

As per the Masters Research Seminar (MRS) presentation suggestions, Gauteng DC was added to the scope of this research, which added further pressure on the data collection time. The MRS panel in the School of Business and Finance (SBF) at UWC is made up of Academics and peers, who are supposed to criticise and identify weaknesses in students' research. In addition to this, the MRS Sessions does allow for subject and sceptical peer review. This can be seen as a strategy and or technique that can enhance the rigour of the research (Devers, 1999).

One respondent in the WC indicated his preference for being surveyed and interviewed in Afrikaans upfront, the researcher was unable to translate the questions into Afrikaans in time, and had to accommodate the respondent as per his request. Where the average respondent took 20 to 25 minutes to complete, instead of the expected 15 minutes- this respondent took almost 45 minutes to complete. Overall the

study received a 100% response rate from the survey, and a 92.59% response rate from the Interviews.

**Validity and Reliability Issues**

Flick (2002) states that triangulation is the simultaneous display of multiple, refracted realities. Each of the metaphors "works" to create simultaneity rather than the sequential or linear. Readers and audiences are then invited to explore competing visions of the context, to become immersed in and merge with new realities to comprehend. Devers (1999) defines triangulation as the use of more than one method to verify and validate results.

The combination of multiple methodological practices, empirical materials, perspectives, and observers in a single study is best understood as a strategy that adds rigor, breadth, complexity, richness, and depth to any inquiry (Flick, 2002).

**Strategies that enhance rigor**

The following strategies and techniques, summarised in table 4 below, are designed to deal with common problems in research (Devers, 1999). According to Devers (1999) the table 4 below, suggests that many of these strategies should be employed throughout the research process and some can be utilised after the research is completed.



**Table 5: Rigor adhancing strategies**

| Criteria | Strategies |
|---|---|
| Credibility/Internal Validity | Triangulation: to make use of multiple data sources, investigators, methods, or theory to the extent possible to provide corroborating evidence.<br>Search for disconfirming Evidence: the researcher actively looks for cases that do not fit the pattern and refines the theory and working hypotheses in light of this evidence. |

| | |
|---|---|
| | The researcher continues this process until all cases fit, eliminating all outliers and exceptions. |
| Dependability/Reliability | Data archiving/ creating and audit trail. The researcher should ensure the completeness and accuracy of documents (e.g., interviews) and be clear about the coding schemes and data analysis process. Theoretically, this would allow someone not connected with the study to review the primary documents and coding schemes to assess whether the findings, interpretations, and conclusions are supported. |
| Confirm ability/Objectivity | Triangulation.<br>Sceptical peer review: A sceptical peer reviewer plays the role of devil's advocate, asking difficult questions about methods, meanings, and interpretation of the data. |

**Source: Devers (1999)**



**Evaluation of qualitative research**

A detailed description of the research context is necessary to assess the credibility of the research results and to determine whether and to what extent they are transferable (or generalisable) to other settings (Devers, 1999).

The following table, also adopted from Devers (1999) explains in detail, the criteria for evaluating qualitative research, and also captures the similarities and differences between the research question, research context, research design, data collection and analysing methods, as well as the values and objectives of research.

**Table 6: Evaluation of Qualitative research**

| Areas | Similarities | Differences |
|---|---|---|
| Research question | Clearly stated/important<br>Researcher perceptions and assumptions clearly stated | Theoretical framework used to be explicit at every stage of the research |
| Context | Clear description of the study context<br>Detailed description of the researcher's role in context | |
| Research study design<br>Sampling strategy<br>Data collection Methods<br>Data analysis Methods | Appropriate research strategy to be used<br>Clear description of the sampling strategy used an why it was selected | Concern with ensuring conceptual generalisability |
| Strategies & techniques for enhancing rigor | Triangulation<br>Search for disconfirming evidence<br>Subject review/Sceptical peer review | Techniques that need to be used with caution<br>Test qualitative results with quantitative data<br>Another researcher to repeat the analysis |
| Presenting & assessing manuscripts and results | Clear jargon-free writing<br>Original evidence sufficient to convince a sceptical reader<br>Final results are credible given question, research design, and strategies employed | Presentation style not addressed<br>Robustness of results not directly assessed |
| Values and objectives guiding the research | Not explicitly stated | |

**Source: Devers (1999)**

There are several aspects of the research context that are important (Devers, 1999). First of all; the physical setting, a detailed account describing where the research is conducted. The second is the researcher's role in the setting.

Based on the first and second aspects, a third can be derived, which is a discussion of how the setting and the researcher's role in it may influence the nature and types of data collected and, hence, the results: in particular, whether the researcher was able to gain sufficient access and spend enough time to develop an intimate understanding of the setting and the phenomenon of interest. As for the qualitative research study designs, a third similarity among the criteria is their emphasis on the link between the research question and study design.

According to Devers (1999) the research design should be appropriate for the question of interest. Other key features of a qualitative research study design include the sampling framework employed, data collection methods, data types and sources used (given the context), and data analysis methods. Perhaps more frequently than in quantitative research, qualitative research designs evolve during data collection and analysis.



**Minimising Errors**

To ensure minimum errors and no inconsistencies, the researcher started off with a 5 Point Likert scale, to look at consensus and disagreement amongst the entire population. Respondents filled out the survey, their responses were averaged out as indicated in appendixes D and E. When entering data, one might make mistakes. To eliminate this problem, the researcher and another person captured all individual responses separately, on a single survey template. The two templates were then compared to look for consistency and make sure there were no errors.

The researcher also used interview sessions where interviewees answered questions and the researcher filled in answers on the actual interview sheet. During the interview sessions, interviewees were allowed to ask questions in case they did not understand some questions so that they could provide highly accurate answers, as far as possible.

The researcher wrote down all the interview responses, and asked interviewees to repeat themselves if anything wasn't written down clearly. Due to the speed at which these responses were written down, some scripts were illegible at times, in these instances the researcher contacted the relevant respondents to ask for clarity.

As mentioned previously, the Survey and Interview questions were drawn and were slightly adapted from the work of Gold, Malhotra and Segars (2001). Over and above this, the researcher worked closely with experts, like his Research Supervisor. A trial was done with respondents within the Organisation's Sales Department, to check if the research instruments would generate "sensible" answers.

**Limitations of the study**

It is acknowledged that the management of knowledge, in all its complexity, will constitute much more than the issues to be identified in this research (Kruger and Johnson, 2009). The respondents that were considered ideal for this type of study are Senior Managers. The population and sample consist of 27% Senior Management, and another 27% of Middle Level Management, suggesting that more than 50% of respondents can be considered ideal for this study.



Ideally, the findings of the study should be limited to the particular DCs, or at best only be generalised to DCs of similar size within the FMCG industry. To further enhance the rigour of the research, another DC, within the same organisation, based in Gauteng Province was researched to allow the researcher to compare across DCs-making the research more credible.

**Ethical considerations**

Informed consent: the researcher obtained the necessary permission from the respondents. Welman, Kruger and Mitchell (2010) argue that this can only happen after respondents are thoroughly and truthfully informed about the purpose of the interviews and the (investigation) research.

Furthermore, the researcher assured the respondents of their right to privacy (that their identities would remain anonymous) and that they would be protected from harm

(assurance that the respondents would be indemnified against any physical and emotional harm).

The researcher has been guided by the University of the Western Cape's code of conduct pertaining to research, in so doing the researcher guarded against manipulating respondents or treating them as objects or numbers rather than individual human beings. The researcher refrained from using unethical tactics and techniques to convince its unit of analysis to participate, or to get information from them. Appendixes B and C are copies of the Consent Forms, respondents filled out before any data was collected from them.

**Conclusion**

This chapter outlined the research method used in this study. It explained the different types of qualitative research, and motivated why qualitative methods were used. The chapter also looked at and made reference to the Research Methods that were used in other KM and KS studies.

The next chapter deals with and discusses the research findings.

## CHAPTER 4: RESEARCH FINDINGS

### Introduction

The previous Chapter dealt with the design of the research strategy that was followed. It mentioned the sample being studied and the tools (5 point Likert scale and Interviews) used to undertake this research. This chapter presents and discusses the results of the measuring instrument and interview sessions conducted. It rounds up with all the other findings that the researcher observed. The Survey was used to look at consensus and disagreement amongst respondents only, whilst the Interviews were used to gather (solicits) more detailed responses.

Based on the Literature on Knowledge Sharing and Management, it can be argued that Technology, Structure and Culture contribute to the infrastructure capability of an organisation, which enables knowledge sharing (Mills and Smith, 2011; Gold, Malhotra and Segars, 2003). These three concepts certainly add value to the organisation in terms of knowledge flow. As mentioned earlier, two DCs have been researched to allow for the drawing of comparisons, but this study focused on the DC based in the Western Cape.



### Organisational background

It has been explained in Chapter 3, that this study is about two of eleven DCs within one out of four divisions. The DCs' mandate is to deliver in full and on time, within 48 hours after the order is placed to customers situated anywhere in the respective regions (i.e. Gauteng or Western Cape). In this regard, this mandate gets relaxed, when the DCs experience stock shortages.

### Background of the participants

### Demographical Results

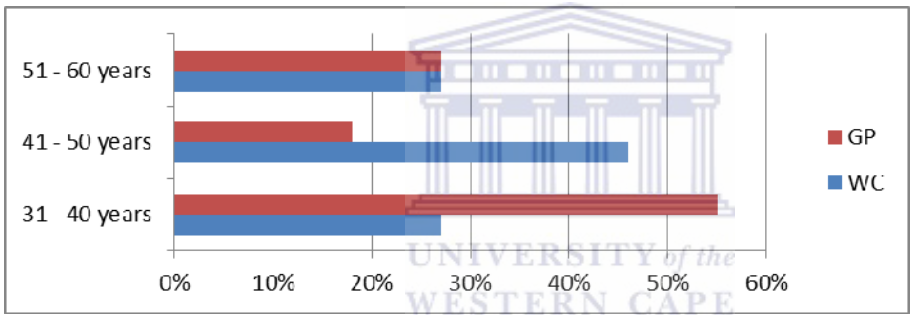
Research has investigated how the minority status or diversity of team members relates to KS. Ojha (2005) shows that team members who consider themselves a minority based on their gender, marital status, or education etc. are less likely to share knowledge with team members. Sawng et al. (2006) observes that Research and Development teams in large organisations with higher female-male ratios are more likely to engage in KS.

Similarly, Minbaeva (2007) asserts that different national cultures and languages can pose challenges for KS, within Multinational organisations and international subsidiaries. The fact that employees at the DCs have different home languages, can pose communication challenges. It is on this backdrop that Ojha (2005), Sawng et al. (2006) and Minbaeva (2007) view Age, Gender, Race, Level of Education and Home Language as important.

**Age**

Fifteen people were surveyed in the WC, and eleven in Gauteng Province. There was a good mix of participants from senior and middle to junior managers from both the DCs. The chart below is based on responses from the both Gauteng and WC.

**Table 7: Age**

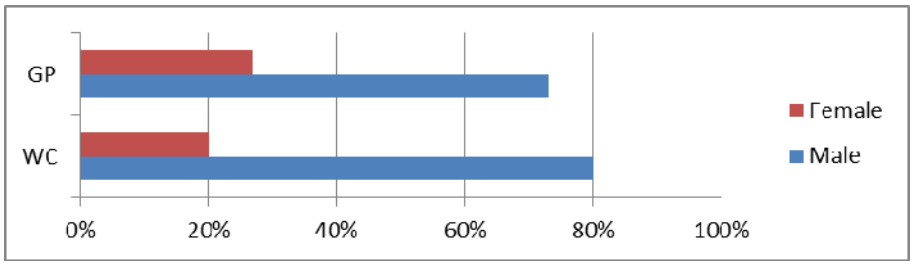





All the respondents were between ages 30 and 60 years. The majority of them, 46% were aged between 41 and 50 years. At Gauteng DC, the majority of respondents (55%) were aged between 31 and 40 years. Respondents aged between 41 and 50 years, were the least at 18%.

Based on the above, it can be argued that Gauteng has a younger labour force, and that KS should be better at WC DC, with an older labour force- who is willing to share their knowledge. It should be noted, that even though this study was not looking for respondents' experience, the respondents were quite experienced given that with the exception of one respondent- they all worked for the respective DCs for longer than two years. The respondent with the least experience was based in Gauteng, and have been with the DC for 18 months, but worked for an opposition DC for between 4 and 5 years.

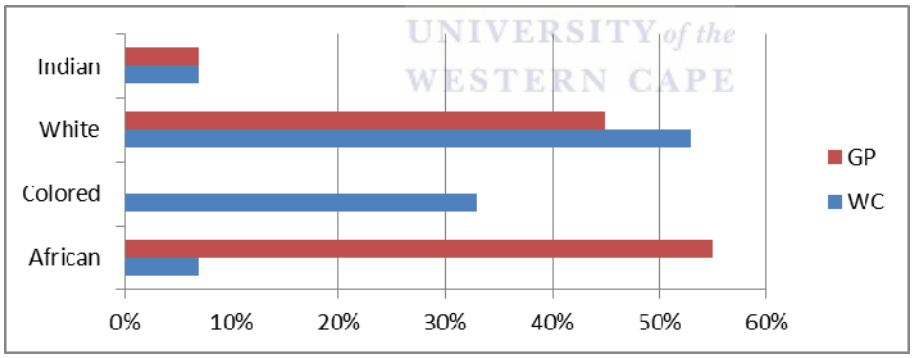
**Table 8: Gender**




**Gender**

The majority of respondents at the two DCs were male (WC 80% and Gauteng 73%). Three of the fifteen respondents in the WC (20%) were female and 27% in Gauteng. The above chart summarises the Gender of the respondents at both DCs. For the WC the majority of respondents (53%) were Whites, and in Gauteng the majority (55%) were Blacks. Coloured respondents in the WC were at 33%, whilst White respondents were sitting second in Gauteng at 45%. Both DCs had 7% of Indians.

**Table 9: Race**

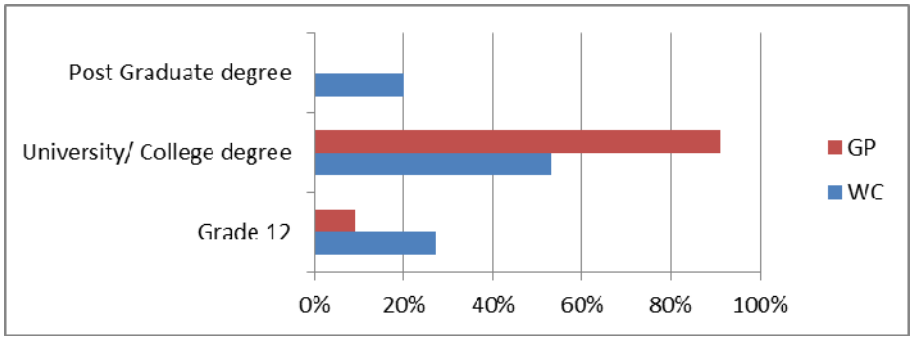





**Race**

The difference in race at the two DCs can be attributed to the geographical areas. It is public knowledge that there are more Coloured people in the WC than in Gauteng. The presence of this high ratio of White and Coloured respondents in the WC specifically, can be the result of the operational requirements, demanding skilled workers (due to Apartheid, these type of workers (skilled) are mainly White). The above chart reflects race at the WC and Gauteng DCs.

**Table 10: Level of education**

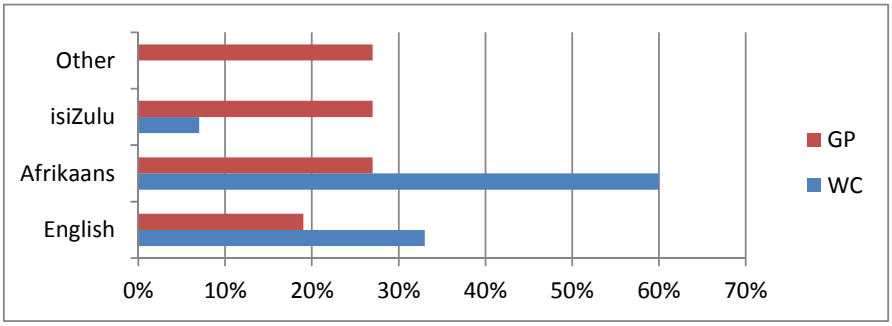



**Level of education**

At the WC DC, 53% of respondents indicated that they are holding an Undergraduate University or College degree, compared to 91% of respondents at Gauteng DC. 9% of the respondents at Gauteng DC are holding a Grade 12 qualification, whilst 20% of respondents in the WC hold a Post Graduate degree. It is interesting to note that the percentage of respondents who hold a Post graduate degree and those who are White are equal at 53%, at the WC DC.

An employee' level of education is important. There is a relationship between an employee's level of education and his or her ability to share knowledge (Riege 2005). People who are educated might feel less threatened by others, compared to an uneducated person. The educated might find it necessary (since he or she has the knowledge) to share with others. Uneducated people, on the other hand might hold back all information they have, in order to keep themselves relevant.

**Table 11: Home Language**



**Home language**

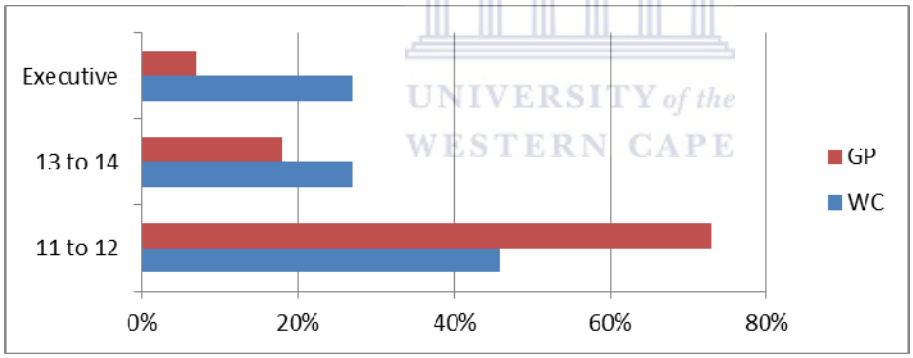
Afrikaans was indicated as the major Home Language (60%) spoken in the WC, 33% stated that it is English, and only one of fifteen respondents indicating isiZulu. This picture looks significantly different at the Gauteng DC, where Afrikaans, isiZulu and other languages (Venda) were equal at 27%. Only 9% of these respondents indicated that they speak English at home.

**Job grades**

Job grades varied across the two DCs, with 27% of WC respondents who were Senior Management, and Middle Management respectively, and the majority, 46% were just management. In Gauteng there were only 7% Senior Managers, with the majority 73% being just management. Another interesting factor to highlight is that the only Black respondent, speaking isiZulu in the WC, happened to be female and holds a Post Graduate qualification.



**Table 12: Job grade**




To the researcher this highlights the fact that from an operational requirement point of view, a knowledgeable and or educated person is required (Hamidi et al, 2012; Mills and Smith, 2011; Gold, Malhotra and Segars, 2001). This also allows for the assumption that all respondents properly understood the questions that were posed to them, through the Survey and Interview considering that they are all knowledgeable and "educated".

Worthy of note, is that the WC DC has more Senior Managers, compared to Gauteng DC. This might be the case because of the organisation's Head Office which is located

in the WC. Many respondents, particularly in the WC indicated that they studied Engineering, Logistics and Project Management. For the DC to operate, they need people with this type of Academic background, and others with Administration knowledge.

**Factors that influence knowledge sharing**

**Infrastructure capabilities**

Technology together with organisational structure and culture are known as the organisation's infrastructure capabilities, which is important for achieving knowledge sharing. Based on Mills and Smith (2011), Ho (2009), Hamidi et al (2012) and Gold, Malhotra and Segars (2001), it can be deduced that the above mentioned KM Infrastructures (technology, organisational structure and culture) contribute to KS. In this regard, questions relating to the testing of these concepts were posed to the respondents.

The questions from the survey were posed by Gold, Malhotra and Segars in a similar study they did in 2001. The Language used was simplified to make it understandable in the context of the DC that was studied.



**Technological KM infrastructure**

Call (2005) argues that technology can assist a well-established KM initiative, but knowledge sharing, as a major focus area for KM cannot succeed based solely on technology. Call (2005) also points out that it is important to realise that KM is less of a technical problem and more of a cultural problem.

The most prominent ICT tool for facilitating KS is an intranet; since ICT may be effective in lowering at least some barriers involved in knowledge sharing. Hendriks (1999) identifies three barriers as follows: temporal distance, physical distance and social distance, but also proposed solutions to these barriers. Overcoming the barrier of social distance, according to Ruggles (1997) may prove the most difficult. ICT may be of assistance however in the form of tools facilitating social translation for example.

The DCs under study was using Informer, Intranet and the Internet, amongst other programs.

**Informer:** This is merely an archiving tool, which allows employees to access documents, like HR policies, Code of Conduct etc. The potential downside of this tool, is that access to certain documents are restricted to certain individuals only

**Intranet:** The organisation's intranet is basically a private internet, accessible to employees with valid passwords and usernames. Through this medium, there is communication throughout the organisation. Other divisions' work or programmes are documented and shared.

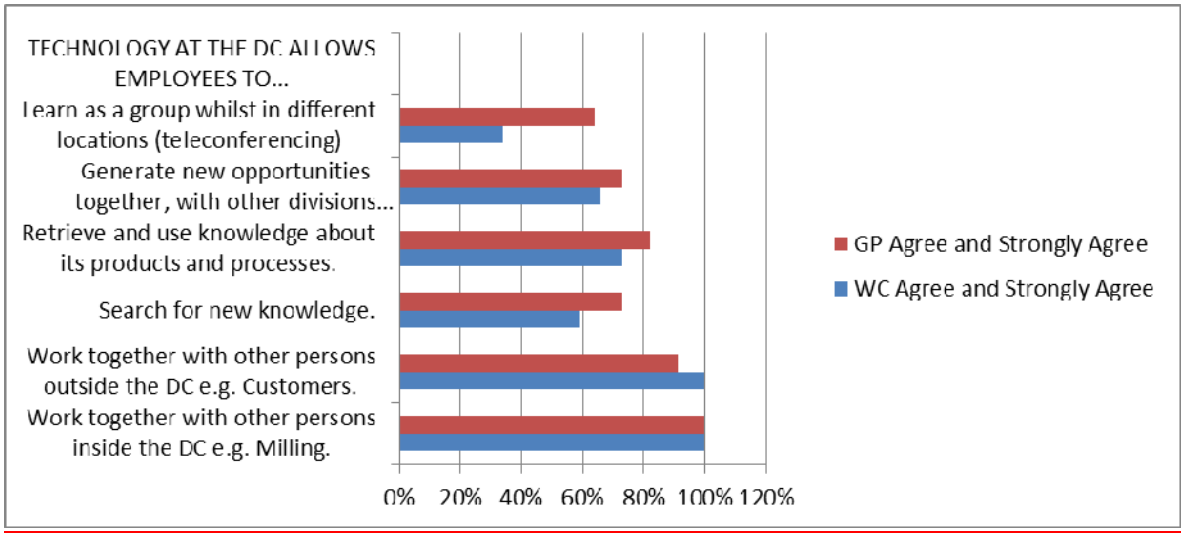
**Internet:** From the interviews, it became clear that the Internet is recognised as key in efforts to share knowledge. One respondent said that he can't remember how things were done before the arrival of the Internet, and that he can't imagine how he will get his job done without it.

**EDI:** This is a program that allows for Electronic Data Interchange. Customers, can place orders from their stores, where after the order would be captured almost immediately. This has the benefit of speeding up the order capturing process, and allows for a paper trail.



With this part of the survey and Interviews, the researcher tried to understand how technology currently used at the DC, enables knowledge sharing. The aim of this particular question was to determine to what extent technology is employed to enable knowledge sharing in and outside the DCs.

**Table 13: Technological KM infrastructure**



In the WC 87% of respondents agreed and 13% strongly agreed, compared to Gauteng DC where 82% agreed and 18% strongly agreed, that their DCs used technology that allows its employees to work together with other people inside the DC. The two responses were quite close, suggesting that there is consensus on this question. Furthermore 64% of respondents at Gauteng agreed that technology allows employees to work together with other people outside the DC i.e. customers, compared to the Western Cape's 93%.

The responses from the two DC's are in line with Hendriks (1999) who argues that ICT can enhance knowledge sharing by lowering temporal and spatial barriers between knowledge workers and improving access to information about knowledge. Technology comprises a crucial element of the structural dimensions needed to mobilise social capital for the creation and sharing of new knowledge (Gold, Malhotra and Segars, 2001).



At the WC DC, 59% of the respondents agreed that technology allows them and other employees to search for new knowledge, and 73% agreed that the same technology allows them to retrieve and use knowledge about its products and processes. On both these two responses, 73% of the respondents agreed, and another 9% strongly agreed on the latter question.

Ideally both DCs should have had a 100% agreement rate, on this question, but this (the fact that it is not like that) could be the result of access control, where only certain employees- based on job grade and role in the business are allowed to access certain documents. This was well captured in some of the interviews; where interviewees indicated that access control discourage KS, since some files etc. are off limits.

It should be noted however, that ICT, like the intranet may facilitate access to information bases storing data that are relevant beyond the individual level. As an example, Hendriks (1999) considered electronic document management, document information systems and document imaging systems. Many senior managers indicated that this allows them to have quick and easy access to information.

Respondents who agreed on the usefulness of Teleconferencing as an enabler for people in different locations to learn as a group, from a single source- were limited to Executives who actually make use of that facility. These executives, are inundated with information, and often used to fly across the country attending meetings. This process was tiring, expensive and slow. Technology provided the solution.

Survey responses on this question (whether the technology at the DC allows people in different locations (i.e. with the use of communications technology- like teleconferencing and or video conferencing to learn as a group) were quite varied at both DCs. In the WC 52% disagreed, two of the fifteen respondents were indifferent with the remaining 34% who agreed, when probed they acknowledged the use of this type of technology. At the Gauteng DC 59% of respondents agreed, with another 9% who strongly agreed.

Referring to the chart above which captures the responses at both DCs, it is evident that the majority of respondents agree on the usefulness of technology at the DCs. This is particularly important, since technology is regarded as an enabler for knowledge sharing (Ruggles, 1997).



From the survey responses it became clear, that technology plays a vital role in the way knowledge is shared at the DC. For more detailed responses, please refer to Appendices D and E.

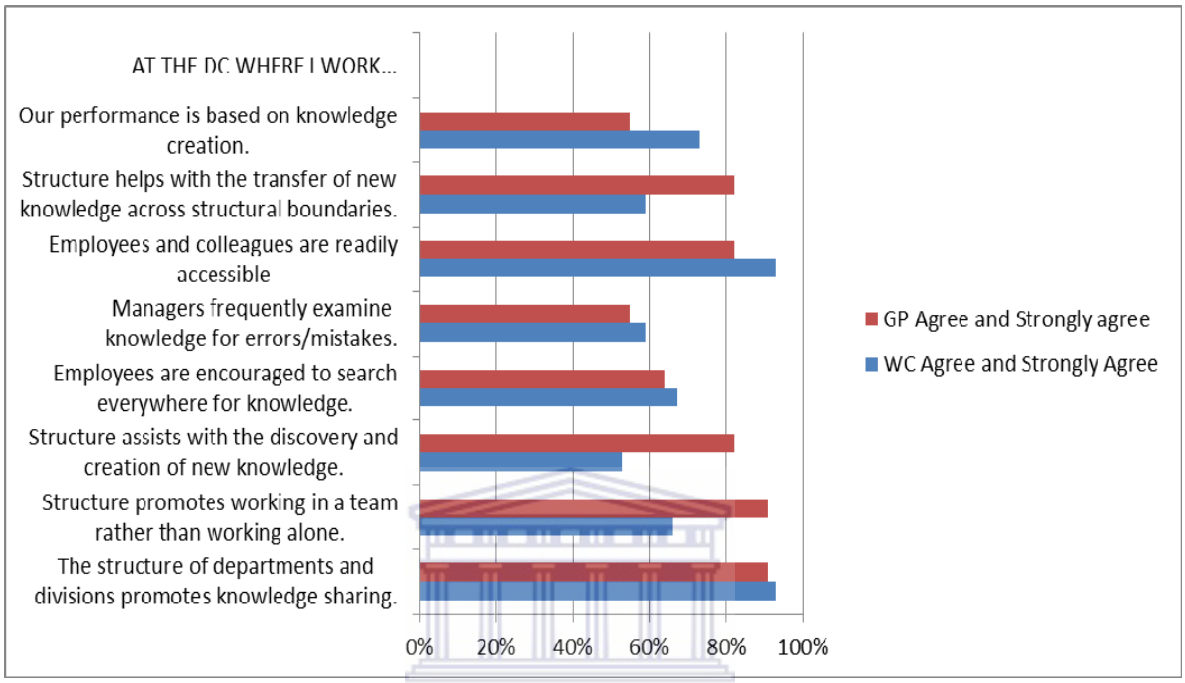
**Structural KM infrastructure (Organisational Structure)**

Organisational structure is important in the leveraging technological architecture (Gold, Malhotra and Segars, 2001: 188; Mills and Smith, 2011). This is to suggest that it is important when organisational structures are designed for flexibility (as opposed to rigidity) so that they encourage sharing and collaboration across boundaries within the DCs.

This part of the survey and Interview questions aim to determine how the structures of departments (i.e. Human Resources, Administration, and Warehousing) at the two DCs promote employees to work together and share knowledge. In the WC 93% of respondents agreed that the structure of departments at their DC promotes the way in

which employees interact with each other and how knowledge is shared. At Gauteng DC 73% agreed with another 18% who strongly agreed.

**Table 14: Structural KM infrastructure**






At both research sites, the physical buildings, in which these different departments are located, are separated from one another, but it doesn't hamper interaction. Some respondents (especially in Gauteng) indicated that their dislike for technology i.e. e-mails and their preference for face to face communication be "blamed" for this. Employees preferred to speak to their colleagues face to face depending on the nature of these discussions.

With recent restructuring at the organisation, respondents stated that they are communicating in both tacit and explicit form. This according to them is mainly because they need to "protect" themselves. Tacit communication, even though it's preferred, cannot guarantee ones safety without communicating explicitly. At the Gauteng DC, 73% of respondents agreed, compared to 53% in the WC that the structure of their DCs facilitate the discovery and creation of new knowledge. Senior respondents at both DCs indicated that there is space for improvements.

To encourage interaction, one senior manager at the WC DC stated that: *"I hold and conduct daily meetings with different departments at the same time where knowledge and ideas are shared".* Four of fifteen respondents were unsure with another three who disagreed. Responses to this question seem to suggest that there is disagreement amongst management as to whether the DCs' structure really facilitates the discovery and creation of new knowledge. The majority of the respondents in Gauteng agreed.

Some respondents who disagreed stated that the current structure promotes poor communication- they are not sure why, but said that has been the case for a while. One respondent stated that: *"Everybody does his or her own thing; there is a definite need for improvement".*

One WC Senior Manager indicated that: *"The DCs' structures were not designed for the creation of new knowledge"*. It is his view, that the DC is doing exactly what it is designed for. Recent Head Office initiatives, encouraging employees throughout the organisation- including the DCs pose significant challenges especially since the organisation's culture, reflected in the DCs, is the result of the structure.



A majority of the respondents (67%) in the WC indicated that regardless of the structure, they are encouraged to go wherever they need to in order to gain knowledge. Respondents who disagreed stated that it differs from Line Manager to Line Manager and also that such actions can be seen as insulting to whoever one is reporting to. One WC respondent said: *"Most people want to stagnate and would prefer to use tested methods, very few people here are forward thinking*".

At the Gauteng DC 46% agreed compared to 59% of respondents in the WC that Managers frequently examine knowledge for errors. These respondents described it as good- *"Managers should look through others' work, it's their jobs"*. The 14% from the WC who disagreed, would have preferred the question to ask: *"Do managers deliberately search through your work for errors in order to discipline you?"* the answer to that question would have been a resounding "yes".

They (the 14% of respondents who disagreed) said that, managers only look at your work when you made mistakes and that at times they feel victimised. The general feeling amongst respondents was that employees throughout the DCs are readily accessible, to assist and share their knowledge with others. This can be substantiated with the fact that 73% of the respondents are older than 40 and younger than 60.

When probed, most of the respondents stated that Managers never shot down their ideas and that at best, ideas were debated. One senior respondent said that not looking at someone's work to spot mistakes- borders on the assumption that there is no room for improvement.

Most senior Managers stated that they never look for mistakes but that they were able to pick them up quite easily- they are rather looking for trends but would correct and highlight errors/mistakes if they present. After this, they would go and search for the source of these errors and mistakes.

A majority of the respondents thus, have a short time left to retire and certainly possess a lot of knowledge that they are prepared to share. On another question which was meant to determine whether the DCs' structure facilitate the transfer of knowledge across structural boundaries; the respondents from the WC seem to be in disagreement with only 59% who agreed. This stands in sharp contrast with the Gauteng respondents who said that despite the physical distance in buildings they still interact and share knowledge, 64% of them agreed and another 18% strongly agreed.

A major reason for the DCs' structural KM infrastructures current contribution to knowledge sharing could be found in the fact that 73% of WC and 55% of Gauteng respondents agreed that employee performance is based on knowledge creation. One respondent stated that: *"Knowledge creation is an indicator that is measured on the Key Performance Indicator (KPI), especially new ideas".*

Another respondent interpreted the question differently- stating that: *"Knowledge creation benefits the employee- especially if it is about new ideas that will improve operations".* This question was meant to understand to what extent employees are held accountable for knowledge creation.

From the above it can be seen that majority of the respondents agreed that the DCs structures certainly contributes to knowledge sharing. With the exception of the indifference amongst employees (or disagreement) regarding whether the structure facilitates the discovery and creation of new knowledge specifically- it can be deduced that structure as a component of infrastructure capabilities is necessary for knowledge sharing.

**Cultural KM infrastructure**

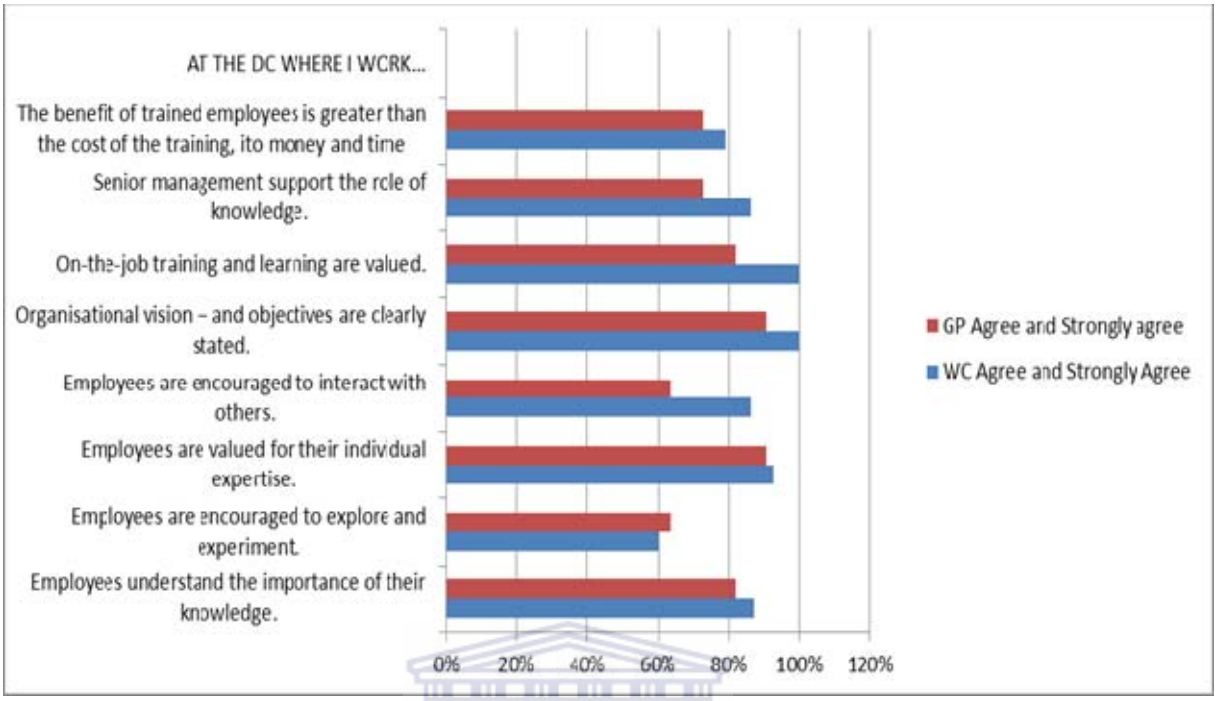
De Long and Fahey (2000) are of the opinion that culture is reflected in the values, norms, and practices of the organisation, where values are manifested in the norms that in turn shape specific practices.

De Long and Fahey (2000) identify certain aspects of organisational culture that influence knowledge sharing- culture that shapes the assumptions that knowledge is important as it controls the relationships between the different levels of knowledge (organisation, group, and individual), and it creates the context for social interaction. It is also culture that determines the norms regarding the distribution of knowledge between an organisation and the individuals in it (Staples and Jarvenpaa, 2001).



It is very evident at both DCs that some form of culture is important. Even though there were differences in culture as should be expected, they both agreed that a knowledge sharing culture is crucial. One respondent at the Gauteng DC said: *"Culture is important to us (especially amongst us Blacks), but whether it's happening at the DC is something else".* This response is in line with Vygotsky's (2001) who singled out culture as the most significant hurdle to effective KM and knowledge sharing.

**Table 15: Cultural KM infrastructure**




Based on the above, this part of the survey aimed to determine whether employees understand their role in the DC's culture and on-going success. In this regard 87% of WC and 73% of Gauteng respondents agreed that they understand how important what they know is to the success of their respective departments. A senior manager indicated that: *"It's easier for employees to understand the value of their knowledge; when you have collaboration in a team scenario, like mission directed work teams in another division".* This is particularly true, given that culture is bound to people's egos and occupations across the organisation (Davenport et. al., 1998)

13% of the WC compared to 18% of the Gauteng respondents disagreed. In the researcher's view that is a huge percentage considering that knowledge is widely regarded as power and that the organisations that capitalise on this are the ones who become successful. Respondents who disagreed said: *"Employees do not always understand the value of knowledge possessed by others. Some people are more knowledgeable than others- grasping that is important."*

In Gauteng 46% of the respondents agreed and another 18% strongly agreed, compared to 60% of respondents in the WC that employees at the DCs are

encouraged to explore and experiment, suggesting that risk of failure can be tolerated. Senior managers indicated that they encourage new idea generation. Then they look at the feasibility of these ideas if accepted and consequently implemented- the results are shared across the organisation. Employees that generated these ideas normally get recognised.

Simple ideas like suggestions of different delivery days, performance of Stock Keeping Units (SKU) have been accommodated, accepted and implemented to the benefit of customers and the entire organisation. Some respondents indicated that the nature of the work in their departments (where work is routine) does not allow for experiments especially since the set-up of these departments are structured.

One of the (33%) of the respondents who disagreed at the WC DC stated that: *"I don't think we are allowed to experiment, given the fact that we are disciplined when we fail".* One respondent indicated that employees know what they do, and are "well" qualified. *"One can ask for their opinions and at "best" debate through ideas".*

A majority of WC (93%) and Gauteng respondents (82%) indicated that employees at the DCs are valued for their individual expertise. This response supports an earlier response on the DCs' structure where 73% of the WC respondents agreed that that individual performance at the DC is based on knowledge creation.

During the knowledge creation process, according to Vygotsky (1986) socio-cultural and historical contexts are important for individuals because such contexts give the basis for one to interpret information to create meanings. Gold, Malhotra and Segars (2001) agree with Vygotsky- emphasising that the most significant hurdle to effective KM is organisational culture.

Appreciation is shown during meetings and career discussions when and where employees are appraised in front of their peers. At times, employees are rewarded with shopping vouchers. This, drawing on Vygotsky's (1986) might be what motivates employees at the DC to create new knowledge. The last two responses, in the researcher's view is indicative of an organisation where knowledge is valued, this does not really suggest that knowledge is shared indeed.

Gold, Malhotra and Segars (2001), Ho (2009) and Vygotsky (1986) argue that interaction between individuals is essential especially during the innovation process. The organisation should have a culture where employees interaction is encouraged both formally and informally in order for relationships, contacts, and perspectives to be shared by those not working closely together.

In the case of an organisation like the one under research, which operates through eleven DCs- this type of employee interaction and collaboration is important especially when there is a wish to transmit tacit knowledge between individuals or convert tacit knowledge into explicit knowledge- thus transforming it from individual to organisational level.

**On the job training**

This is a method by which knowledge in an organisation can be transferred from one person to another. At the WC DC 80% of the respondents agreed and 20% strongly agreed that on the job training and learning are valued. The interviews revealed that the DCs have an Apprenticeship program that is designed for knowledge sharing. This program aims to address the issues of skills shortage in critical areas.



To further support the above mentioned responses, 86% of the WC respondents agreed that employees are encouraged to interact with others and to discuss their work. This statistics might suggest that knowledge is shared amongst the employees, especially since only one of the fifteen respondents disagreed and another one indicated that he/she is unsure.

Knowledge is “intimately and inextricably bound with people’s egos and occupations” and does not flow easily across the organisation (Davenport et al., 1998:45). According to Stenmark (2001), people are not likely to share knowledge without strong personal motivation. Motivational factors that influence knowledge sharing between individuals can be divided into internal and external factors.

**Factors that motivate Knowledge sharing**

Internal factors include the perceived power attached to the knowledge and the reciprocity that results from sharing. External factors include the relationship with the recipient and rewards for sharing. The respondents indicated that they are more likely to share their knowledge if their jobs are secured (the shared knowledge should not be a threat to their jobs) when they trust the recipient of their knowledge, and when the recipient is more senior than themselves. This response is in line with the perception of Gold, Malhotra and Segars (2001) and Hamidi et al (2012).

They (respondents) indicated that they are unlikely to share with their immediate peers especially when they might be competing for the same positions. One respondent, an HR Manager highlighted a case where a Coloured Female who worked for the organisation- graduated as a Chartered Accountant and got promoted to a higher level. Her "new" peers expected her to be knowledgeable to the extent that she could not cope- and actually resigned.

This scenario highlights the "fact" that knowledge is power. The increasing importance given to knowledge in organisations and the increasing value attributed to individuals who possess the right kind of knowledge are conducive to creating the notion of power around knowledge. If individuals perceive that power comes from the knowledge they possess, then it is likely to lead to knowledge hoarding instead of KS (Davenport, 1997; Gupta and Govindarajan, 2000).

Individuals use knowledge for both control and defence (Brown and Woodland, 1999). In a competitive environment, withholding knowledge from those considered competitors is often regarded as being useful to attaining one's goals (Pfeffer, 1980). Weiss (1999) observes that power politics is an important aspect of knowledge sharing in organisations.

On the question of whether the organisation's vision is clearly stated, there was a unanimous response across the two DCs. In the WC 67% of the respondents agreed, and the rest strongly agreed that the organisational vision and objectives are clearly stated. At the Gauteng DC, 73% agreed with 18% who strongly agreed. This vision and objectives are those of the entire organisation- coming from their Head Office. The

researcher observed throughout the DC on the walls of offices, corridors and even the reception posters of the mission and vision.

One respondent noted that: *"It's everywhere on the organisation's websites- intranet".* That it is well stated, and properly thought through. Another senior WC respondent stated that: *"Employees know it, are aware of it, but the only problem is that it's top down. No consultation or very little input from employees at the bottom of the organisation. Employees just need to accept that".* The current vision has been there forever and it should change with the times he stated.

Interestingly enough was the fact that very few of these respondents actually knew the mission and vision statements. The job training is definitely valued as all the respondents agreed and strongly agreed. The respondents stated that due to the technical set up of operations, it's best to show others rather than explain. The statistics on demography indicated that 80% of the respondents were males suggesting that operations are quite technical (hard labour) which supports the idea that on the job training be valued.



**Senior Management support**

Another response which showed total consensus was on whether Senior Management (Directors, National Managers and General Managers) clearly supported the role of knowledge in the organisation's success- 86% of the respondents in the WC and 73% in Gauteng agreed. Some of the reasons stated were the Apprenticeship and Learnership programmes for staff, as well as Internships and general training.

Few respondents tried to quantify this "investment" suggesting that unless Senior Management supported knowledge sharing- they would not have authorised the spending. Some respondents also stated that: *"senior management support is channelled from top-down."* Top Management support according to the literature (Wang and Noe, 2010; Gold Malhotra and Segars, 2001) is an important element of knowledge sharing.

In essence senior managers should support knowledge sharing initiatives (not just approving the funds) through playing an active role in decision making. People, who

are well informed, should be able to make better decisions. Senior managers championing the idea of KS should encourage co-operation and commitment to the course.

**Benefits versus the cost of training and coaching**

KS involves people who possess knowledge whether explicit or tacit and who are willing to share. People are therefore an important resource in the driving of this type of agenda- as mentioned in the previous. Senior management support can certainly encourage commitment.

The WC respondents (79%), and 55% of Gauteng respondents agreed that the benefits of training and coaching of employees is better than how much it cost in time and money. Financial support in the form of apprenticeships, learnerships and bursaries are absolutely crucial in order to expand individual knowledge. Willingness on the part of Senior Management to spend on knowledge "acquiring" programs (Training budget of R5million in Financial year 2012/2013) is critical considering that 27% of respondents surveyed were between ages 51 and 60- very close to retirement.



The Respondents and interviewees suggested that a trained work force is more productive and can become effective and efficient. The investment of time and money into employees also makes employees more loyal and which can result to low staff turnover. High staff turnover as per one respondent, an HR manager are expensive in that it cost any organisation money to get new employees up to speed- with what is expected of them.

Based on the above capability, it can be reasoned that the culture of the DC certainly encourage knowledge sharing.

**Feelings and beliefs about technology, structure and culture at the DC**

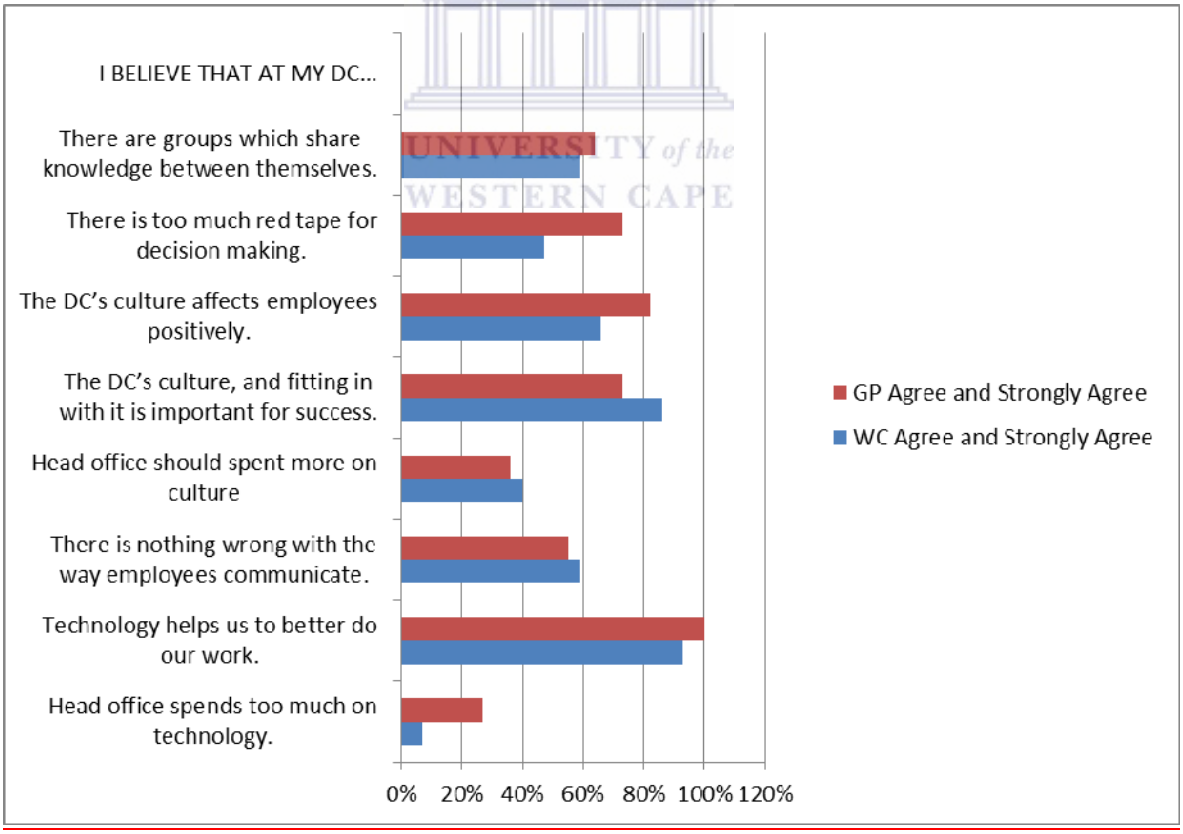
During preliminary research and interviews with staff at the WC DC and an Interview with the organisation's Information Officer at the Head Office, the researcher learnt that low level employees (i.e. semi-skilled) were unhappy about a number of issues. Amongst these was the assertion that the "Head Office" spends too much on

technology. The organisation heavily invested into SAP Programs and on the DC level a system called Business Warehouse was recently introduced.

Business warehouse would allow more than one person in the DC to work on a single customer's order (the putting together thereof) without knowing whose order they are working on. It has the benefit of eliminating stock theft in that pickers, who might have been working with those who drive the trucks, cannot tell in advance which driver will take or deliver a specific order.

This part of the survey and Interview questions aims to determine the general feeling amongst managers regarding the value of technology, organisational structure and culture at the DC. It also aims to look at what are the motivators of knowledge sharing.

**Table 16: General feelings and beliefs about the knowledge infrastructure capability of the DCs**




More importantly however, is that this type of technology (SAP/ Business Warehouse) that was seen as a threat to their livelihoods (i.e. jobs). This could all be the reasons

why semi-skilled workers complaint about technology. 73% of the WC respondents disagreed and another 20% strongly disagreed that too much was spent on technology- considering the above; there is clear consensus on the importance of technology. This also resulted in scepticism to train others. Looking at the motivators for knowledge sharing helps to clarify why this might be the case.

The motivation for KS is derived from Maslow's needs hierarchy (Maslow, 1954). Maslow's theory has been widely criticised, for the following reason; because of the assumed strict hierarchy in needs, because it does not address the question of how behaviour is affected within hierarchy and because of its weak empirical foundation (Hendriks, 1999).

Stott and Walker (1995) and Tampoe (1996) refer to Maslow's theory to indicate that motivation for knowledge work comes from his three highest hierarchical levels. Their implication is that knowledge workers do not share knowledge because of money or to improve their relations with their co-workers. Their motivation rather comes from their desire for self-actualisation.



The Respondents indicated that general shop floor (Blue collar workers) share knowledge only when they do not feel threatened, either by colleagues (new or old) or technology- which can be more effective and efficient than themselves. Several content-oriented motivation theories can be found in the literature as well (McGregor 1960; Herzberg 1968).

These theories, when combined, present a smorgasbord of individual motivation factors like: the wish to earn wages, to expand mental or physical energy, to contribute to the production of goods or services, the desire for social interaction and social status (Vroom 1964), the wish to survive, enjoy, belong, play, the desire for recognition and respect (Maccoby, 1998), the need for achievement, affiliation and power (McClelland, 1971).

The WC respondents indicated that the spending on technology is adequate. 60% of these respondents strongly agreed and 33% agreed that technology helps employees to do their jobs better.

There was consistency with the answering of the two questions in the WC especially since one person agreed that too much is spent on technology and disagreed that technology helps employees to do their job better. Whether it is the same person is highly likely.

Too little money was spent on culture they also argued. Clear disagreement in terms of the responses was observed in the WC's 40% who agreed that the Head Office should spend more on culture, another 40% disagreed and 20% were unsure. In Gauteng, 27% Agreed, another 9% strongly agreed and the majority, 46% disagreed that the organisation should spend more on culture.

General consensus amongst these semi-skilled employees at the WC DC was that there are groups within the DCs that share knowledge between themselves only. These semi-skilled employees' views are supported by 59% of the respondents who agreed that knowledge is shared amongst groups, with only 14% who strongly disagreed in the WC. In Gauteng 64% of respondents agreed. It can be seen that, there might be a culture amongst people to share knowledge with certain people only.



In the WC 40% of respondents strongly disagreed and 53% disagreed that the time and money spent on technology is a waste and that it could have been spent better. One person agreed. However, in Gauteng, 64% disagreed and 18% strongly disagreed on this question. 46% of the WC respondents strongly agreed and agreed that the Head Office should stop spending on technology.

Semi-skilled employees at the WC DC during the preliminary discussions also indicated that there is too much red tape with decision making: 33% of WC survey respondents agreed, 14% strongly agreed, but 33% disagreed. Thus, the respondents were in disagreement on this response.

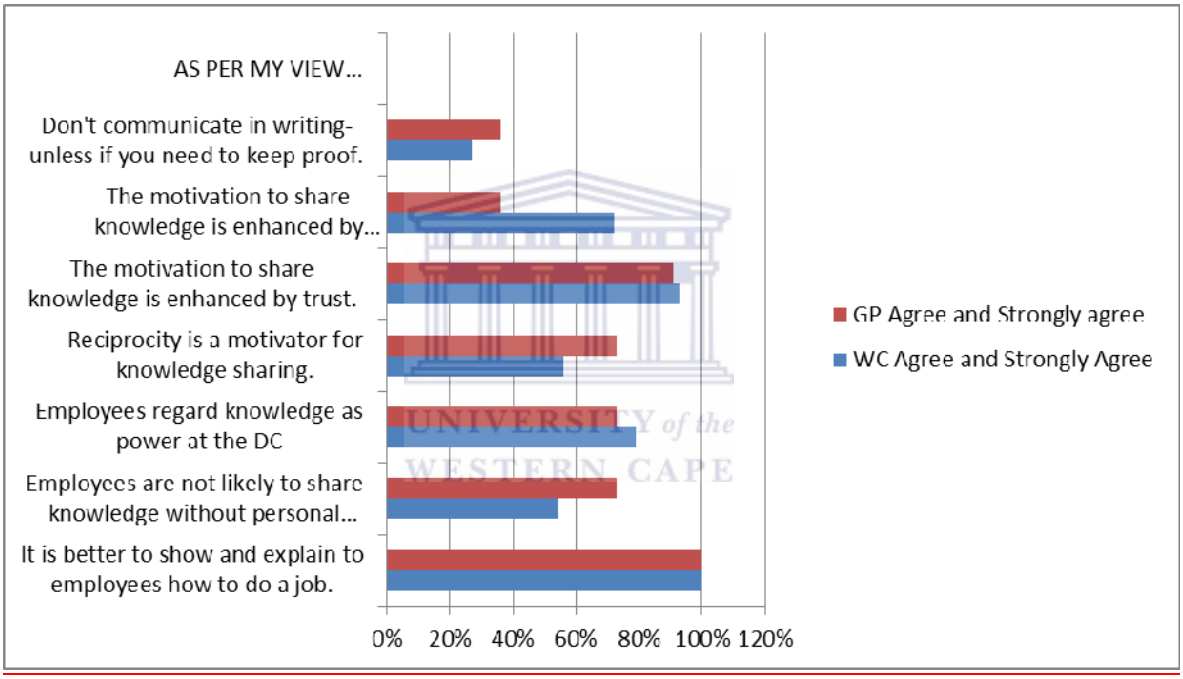
In the WC, 59% of the respondents, Managers, agreed that certain groups shared knowledge between themselves only. 27% were unsure, and another 14% strongly disagreed. The two respondents who strongly disagreed were Executive Managers. Also in the WC, 66% of the respondents agreed that the DCs culture affects

employees positively; 86% agreed that the DCs culture and fitting in with it is important for success.

**General views on knowledge sharing at the DC**

Sharing implies that the sender does not relinquish ownership of the knowledge; instead, it results in joint ownership of the knowledge between the sender and the recipient. Davenport (1997) defines sharing as a voluntary act and distinguishes it from reporting.

**Table 17: General feelings and views about KS at the DCs**




This question aims to test respondents' (managers') views about knowledge sharing in the DCs. Wang and Noe (2010) see perceived benefits and costs as one of the most studied antecedents of KS. Emerson (1981) notes that perceived benefits are positively associated with KS while perceived costs have a negative influence on KS.

In the WC, 27% strongly agreed and 73% agreed that it is better to show and explain to employees how to do a job. It is best to share knowledge in its explicit form when record keeping is "necessary", otherwise it is best to communicate in tacit form. Another respondent said that he prefers tacit but considers both important. This response is in line with responses earlier on on-the-job training.

**Tacit knowledge**

Sveiby (1997) and O'Dell and Grayson (1998) argue that tacit (hidden) knowledge is found in the heads of employees, the experience of customers, and the memories of past vendors. Because knowledge is an invisible, intangible asset and cannot be directly observed, many people and organisations do not explicitly recognise the importance of knowledge, in contrast to their more visible financial and capital assets.

**Explicit knowledge**

Explicit knowledge on the other hand can be easily codified, stored at a single location, and transferred across time and space independent of individuals (Lam 2000). Explicit knowledge therefore has a natural advantage over tacit knowledge in terms of its ability to be shared relatively easily among individuals. Good examples of this form of knowledge at the DCs are tender documents, policy documents, operation manuals, administrative procedures, and reports.

**Respondent perceptions on Knowledge Sharing**



One of the fifteen respondents in the WC strongly believed that employees are not likely to share knowledge without strong personal motivation, 47% agreed- (Moffet, McAdam and Parkinson, 2003). At Gauteng DC 55% agreed and 18% strongly agreed. This might suggest that people at the Gauteng DC need stronger personal motivation before their knowledge can be shared.

79%of the WC respondents agreed that employees regard knowledge as power and argued that the more knowledge one has the more powerful he/she is, whilst the percentage of respondents at Gauteng who agreed were lower at 64%.

In general, employees believed that knowledge helps them to stay abreast and ahead of their peers, but they actually share it especially since they are working on a shared set up where one person's mistakes gets everybody to look bad. A senior WC respondent stated that employees do not give the value of their knowledge a lot of thought- since they are not academics (that's true, for the employees that report to him at least).

At the Gauteng DC, 73% of the respondents agreed that when there is a relationship of mutual gain between two employees, the employees are motivated to share knowledge; similarly 73% at the same DC stated that their desire to share is enhanced when there is a relationship of trust. On the last question 93% in the WC agreed. If trust is lacking, employees cannot share what they know, as per one respondent.

**Motivations for knowledge sharing**

The motivation to share knowledge is enhanced by the power and status of the recipient, at Gauteng and WC DCs, 73% and 65% agreed respectively. Employees it is argued are more likely to share what they know with people who are higher ranked in the organisation, but not with those who are on the same level or lower. Only two of the respondents disagreed with this statement.

According to most respondents, the motivation to share knowledge is greater when there is job security, a degree of responsibility, the possibility to excel and recognition- especially amongst peers (i.e., sending out e-mails to colleagues/general announcements). One senior respondent stated that he believes in “absolute” recognition. He highlighted a case where a different division from his made a suggestion that worked, his department showed the savings. When the accolades streamed in, he recognised the source of the suggestion.



At the WC DC, 27% of the respondents indicated that they agree that employees should stay away from communicating in writing unless one needs to keep proof. 60% of the respondents agreed- suggesting that there is a culture of trust at the DC. There is a general sense to deliver a great service amongst the employees at the DC. Employees try to live as close as possible to the values and norms of the organisation.

**Knowledge Management- and Sharing challenges**

In order to keep the body of knowledge alive and vibrant, in an effort to secure the enterprise’ well-being and long term viability, knowledge should be managed systematically. From a managerial perspective, Wiig (1997) suggests that systematic KM comprises four areas of emphasis as follows:

The top-down monitoring and facilitation of knowledge related activities; In the case of the DC their mandate and KM initiatives flow from the Head Office. The support shown to KS can also be seen through Senior Management support. Looking at whether the organisation invests in technology and culture at DC level, which appears to be the case should be looked at, as well as the renewal, organising, transferring of knowledge assets and the leveraging (using) of these knowledge assets to realise value.

For years, companies strived to manage knowledge effectively, the primary motivation being improved business performance (Choi and Lee, 2003). In addition, KM methods vary depending on knowledge types and organisational core competence.

Not all KM methods are equally effective (Choi and Lee, 2003) - business managers should align methods with their corporate culture. Knowledge managers are being challenged by the difficulty of how to employ KM methods because it is still unclear how they can improve corporate performance. Studies in KM according to Moffett, McAdam and Parkinson (2003) indicate that there can be an over-emphasis on technology to the exclusion of adequate people/quality planning programmes.



**Conclusion**

This chapter analysed the survey (summarised in the graphs), and interview findings. In order to understand the research problem, this research started with an extensive literature review. The analysed results and subsequent discussion thereof is discussed in the next chapter.

## CHAPTER 5: DICUSSION AND ANALYSIS

### The answer to the research questions

The research started with the intention to answer two questions namely: How do technology, culture and organisational structure contribute to the organisation's KM capability; and how this capability contributes to knowledge sharing? Based on the theoretical framework presented on pages 31 and 59, the first question could also ask how technology, culture and organisational structure contribute to culture.

The first question was answered in four steps through examination of the relevant literature. Survey responses indicated the following, based on the measurement of the concepts:

### How does technology contribute to knowledge sharing?

A majority of the respondents agreed that the technology in use at the DC allows for its employees to work together, search new knowledge, retrieve and use stored knowledge, generate new opportunities, and assist in mapping the location of specific types of knowledge. From the interview responses, it became clear that the respondents regard technology as a major motivating factor in their pursuit to share knowledge.



The Internet, Informer (In4mer) and the Intranet are best known amongst employees at the organisation. This technology as per the survey responses allowed employees to work together with people from outside (customers) and amongst themselves (colleagues). It is this form of interaction (working together) which lays the foundation for communication- within which knowledge can be shared.

Access to certain files (repositories) at the DCs is controlled and often making it difficult for lower job grade employees (Levels 10 to 12) to access (retrieve) information making them dependent on others. This might discourage innovation, but at times it actually encourages interaction. Employees without access can approach those with access- normally they are more senior in rank (Levels 13 and upwards). Access control is necessary and great for knowledge sharing. It can be time consuming at times. The repositories are good for retrieving explicit knowledge in the form of policies and operating manuals.

Based on the size of the organisation, the technology in use can also assist in cutting cost in the form of time and travelling expenses. Many senior respondents across the two DCs highlighted the benefits derived from teleconferencing in this regard, as well as the fact that it allows for a collaborative meeting. One respondent stated that the introduction and use of the right technology can enable the DCs to be more effective and efficient.

They are currently looking at a program called “Go-to-meeting”, which can allow for video conferencing. The same respondent stated that: “Technology can be a burden too, e-mails on cell phones years ago were great, but it’s a burden now. It enables quick responses to clients”. What his response suggests is that organisations should progress with the time and that their investment in technology should be continuous as the communication age develops.

This suggests that the organisation is investing sufficiently into technology, which is believed to be able to support teamwork and communication amongst the employees within the organisation. The organisation invested heavily in technology by implementing programmes like SAP and BI. Technology contributes adequately to the organisation’s knowledge infrastructure capability.



**How does the organisation’s structure contribute to knowledge sharing?**

Similar to the question on Technological KM infrastructure, a majority of the respondents agreed that the DC’s structure promotes working together in a team and sharing knowledge can facilitate the discovery, creation and transfer of new knowledge and that encourages the employees to go where they need knowledge.

Based on the literature (Gold, Malhotra and Segars, 2001) structure is an important element of an organisation’s knowledge infrastructure capability. This question has been answered through looking at the literature in Chapter 2.

The structure of the DCs (the makeup of the different departments like Administration, Milling, and Logistics etc.) is adequate for KS, since none of these departments can operate within silos. They are forced to interact and share knowledge as a result.

Interaction doesn't happen naturally since departments are geographically dispersed, making investments in technology a necessity.

Such is this need to share knowledge that even though certain departments are in physically different buildings- it still happens. An average of 93% of respondents agreed to this. The structure of departments in the DCs assist with the discovery and creation of new knowledge- especially when it is designed based on a model that can accommodate everybody. A certain department within the WC DC designed an "Innovation" Spread sheet due to the different locations departments were.

Employees are readily accessible to assist others, especially those from the departments where performance is based on KS. This makes it easy for employees to go anywhere and to anyone when there is need for knowledge. The different departments (structure) have an inherent characteristic- the division of work, which in itself suggests that people's roles need to complement each other in order to get the job done well.



Since there is so much interaction and points of KS, it becomes necessary for managers to examine work for errors and mistakes. This gesture is received with mixed reactions; some respondents regard it to be an act of KS and important from and Educational perspective, especially if one gets feedback. Others see it as a form of checking up on them. Based on the survey and interview responses, the reality is that the structure of these DCs indeed encourages KS.

**How does culture at the DC contribute to knowledge sharing?**

The literature is clear on the "fact" that culture is important for KS (Hamidi et al., 2012; Mills and Smith, 2011; Gold, Malhotra and Segars, 2001; McAdam and Parkinson, 2003). Employees are encouraged to explore and experiment at the DCs, based on the principle that it is "OK" to make mistakes, but only once. Employees need to learn and reflect on and from their mistakes.

Employees are given consistent feedback as a form of demonstrating appreciation of individual expertise. The responsibility of decision making is left with them (employees). It appeared from the interviews that employees who lack responsibility

are believed to be unlikely to share knowledge. Employer confidence in the employee according to respondents will encourage KS, and motivate others to get involve.

Job security at the DCs is very important- lack of which can discourage KS. The organisation at which this research is conducted is currently busy with restructuring. The employees highlighted the fact that they are now more likely not to share what they know in order to use their knowledge to survive and should they leave, they would depart with their knowledge. In this regard, knowledge at the DCs is regarded as power- many of the respondents argued that employees at the DC are not academics and so they dot see their knowledge as power. People at the DCs definitely value what they know and use that to navigate stormy waters.

Employees at the DCs are assisted financially and otherwise to acquire knowledge- through Learnerships, Internships and more formal degree courses. On-the-job training is highly valued too, especially since new recruits only possess "book knowledge", experts assist them on how to apply that knowledge in practice. High staff turnover and recent restructuring encourages the departure to the importance of knowledge at the DCs. This necessitates the fact that tacit knowledge should be converted and stored in explicit form.



In order to encourage this and KS in general the organisation should look at encouraging KS through rewards and initiatives. From the survey and interview responses, it became clear that employees are more likely to share knowledge when the following scenarios hold:

**Relationship of trust:** There need to be a great relationship between the sender (person who shares) and the receiver of knowledge and in addition to trust; they might have to "like" each other. The absence of trust is a major barrier for KS anywhere- these DC's are no different. Employees responded unanimously to this question. Employees refuse to share information (unless they are forced) with people they don't trust, but in the presence of trust they do not only share but even listen from others. According to Sveiby (2001) trust is considered to be key in encouraging employees to share knowledge amongst them.

**KS Friendly environment:** this relate to the organisation's code of ethics, disciplinary code etc. Current occurrences like restructuring are a form of an unfriendly knowledge sharing environment. Other cultural factors that are important for knowledge sharing as per the research respondents are summarised as follows:

**Possibility to excel:** People are encouraged to share their knowledge when the act of sharing makes it possible for them to excel. This comes with the satisfaction of being of value to someone else and the desire to deliver a great service.

**Success and sense of achievement:** certain respondents indicated that their desires to see their departments perform, and becoming the benchmarks in the organisation-encouraged them to share knowledge. This is further encouraged through what one respondent called "structured set up". In these structured set ups, one person's mistakes makes everybody to look bad. In order not to look bad, these employees have to become their colleagues' biggest critique. Recognition was also highlighted, as a key cultural motivator for KS. In addition to this, respondents also stated that maturity in one's career; where a person is confident, his or her achievements are great for KS.



During the fourth and final step of answering the first question, the researcher searched for general feeling and beliefs about technology, organisational structure and culture. These questions were based on comments made by general workers, but related to the literature that was consulted.

There were mixed responses but it was consistent across the two DCs. The respondents disagreed that too much money was spend on technology and that the time and money spend on technology is a waste. Therefore the DC's head office should stop spending on technology. This response corroborates the earlier conclusion that the organisation invested adequately in technology.

Further to this respondents (Managers) strongly agreed that technology helps them to do their jobs better. They also agreed that there is nothing wrong with the way employees communicate and work with each other and also that the DCs culture, and fitting in with it is important for success. This culture they agreed, affects employees

positively, even though there are groups of people that share knowledge among themselves only.

This study concludes that technology (information and communication), organisational structure and culture, which are components of the knowledge infrastructure capability, are important enablers of knowledge sharing at the DC's. Respondents showed their appreciation for these concepts through their responses from the survey and interview questions.

The Respondents understand the role of technology, organisational structure and culture within the organisation. The concept of KS was well understood by all involved in this research. Respondents and employees at the DCs are all involved in some form of KS without really knowing how the organisational capabilities contribute to that (KS). The results clearly indicated that the three components of organisational capabilities encourage KS some more than the others.

From a cultural perspective, there are many ways in which the organisation could exploit KS possibilities. The lack of proper structured incentive schemes for example, discourage knowledge sharing to some degree, addressing this might proof valuable to the organisation. So too, are their elements within technology and organisational structure, that if addressed will add to knowledge sharing.

The next and final chapter, will discuss the conclusions of the study, and make brief recommendations.

## CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

### Introduction

After undertaking this research and analysing the results, this Chapter concludes the thesis by indicating what was learnt and what the implications of the research were. It discusses the implications and recommendations of the results to the DC as an organisation. Finally, it concludes by making recommendations for future research.

### Meeting the objectives

This was done through looking at each of the three concepts (technology, organisational structure and culture) individually and to search for the presence of its elements within the DCs. To achieve this, the following objectives were addressed:

- Understand what knowledge entails;
- Determine how knowledge is created, shared and used within the DC;
- Establish if there exist a KS culture at the DC;
- Understand KS between individuals in the organisation;
- Understand the perceptions of the extent to which technology, organisational structure and culture contribute to knowledge sharing at the DC;
- Identify the factors that would motivate KS at the DCs;
- Determine what enables and discourages KS;
- Recommend KS strategies for improving customer service.

### Knowledge

Knowledge exists at multiple levels within organisations. De Long and Fahey (2000) divide it (knowledge) into individual, group, and organisational levels. Although the individual constitutes only one level at which knowledge resides within organisations, the sharing of individual knowledge is imperative to the creation, dissemination, and management of knowledge at all the other levels within the organisation.

Employees within the different DCs are quite educated with the lowest qualified amongst them being a Grade 12 qualification. The individual knowledge they possess is quite diverse, ranging from Administration to Logistics. Over the years, employees have transferred their tacit knowledge into explicit form that are now captured in documents and policies and stored in archives.

The knowledge in the DCs is residing on two levels, the individual level (in their heads, formal education and experience) and the organisational/ DC level (operating manuals, based on documented experience). Both of these forms have their advantages and disadvantages. Tacit knowledge, according to some of the respondents at the DC are easier to transfer and share, from the knower's point of view. In the absence of the knower however, no knowledge can be shared.

This is where and when organisational knowledge, kept in archives has an advantage. It can be used in the absence of the knower, and is often based in accumulated knowledge. All the respondents at the DCs that were investigated indicated that knowledge in all its forms (tacit or explicit; individual or organisational) is important for the DC to operate.

**Knowledge creation and sharing at the DCs**

According to Nonaka and Toyama (2003) knowledge creation starts from Socialisation: defined as the process of converting new tacit knowledge through shared experiences into day-to-day social interaction. Since tacit knowledge is difficult to formalise and often time-and space-specific, it can only be acquired through shared direct experience, such as spending time together or living in the same environment.



This suggests that in order for KS to happen there need to be two parties. One who is willing to share, and another which is willing to learn. Interview respondents indicated that at the DCs the latter parties are always present, but it is the party (willing to share) that is amiss.

An organisation's ability to effectively leverage its knowledge is highly dependent on its people, who actually create, share, and use the knowledge. Leveraging knowledge is only possible when people can share the knowledge they have and build on the knowledge from others. It might not help the DC if it has "bright" and "intelligent" employees, who have great solutions to problems, unless these solutions are shared with the others.

Employees at the DCs socialise extensively amongst colleagues from within the same department. As a result, KS often happens within the specific department only- where it is operationally required. In light of this, KS can cross boundaries. This is problematic for the DC when certain employees (respondents) allege that certain groups share knowledge amongst themselves only. In general, knowledge is shared at the DC but it could be done better.

**KS culture at the DCs**

De Long and Fahey (2000) identify certain aspects of organisational culture that influence knowledge sharing, culture shapes assumptions about which knowledge is important. It also controls the relationships between the different levels of knowledge (organisational, group, and individual), and creates the context for social interaction.

It is culture that determines the norms regarding the distribution of knowledge within an organisation, and the individuals in it (Staples and Jarvenpaa, 2001). At the DCs under study, culture promotes the sharing of knowledge. It is an environment in which employees are encouraged to explore and experiment. The value of on the job training to the employee and the respective DCs is recognised. Employees are encouraged to co-operate with those in other departments and to share their departmental "experience" with similar departments at different DCs within the organisation.



The nature of knowledge, motivation to share that knowledge and the opportunities to share such knowledge are all factors that are influenced by the culture of the work environment. Organisational cultures are increasingly being recognised as a major barrier to effective knowledge creation, sharing, and use (De Long and Fahey, 2000). The culture of the organisation encourages KS- However; the degree of KS differs from DC to DC.

Organisations are essentially cultural entities (Cook and Yanow, 1993), and therefore regardless of what organisations do to manage knowledge; the influences of the organisation's culture are much stronger (McDermott and O'Dell, 2001). This suggests that if the organisational culture doesn't promote KS, no knowledge can be shared and vice versa.

**Perceptions of the extent to which technology, organisational structure and culture contribute to knowledge sharing at the DCs**

The organisation invested adequately in technology. Such is the adequacy, that technology encourages KS in the respective DCs. Respondents stated that technology helps them to do their jobs better and also that there is nothing wrong with the way employees communicate and work with each other. They further said that the DC's culture, and fitting in with it is important for success. This culture they agreed, affects employees positively, even though there are groups of people who only share knowledge between themselves.

The respondents understand the role of technology, organisational structure and culture within the organisation. The concept of KS was well understood by all involved in this research. The results clearly indicated that the three components of organisational capabilities (technology, organisational structure and culture) encourage knowledge sharing, but some more than others.

From a cultural perspective, there are many ways through which the organisation can exploit KS possibilities. The lack of proper structured incentive schemes can, discourage knowledge sharing to some degree. Thus, addressing this might proof valuable for the organisation, and so are their elements within technology and organisational structure, that if addressed would add to knowledge sharing.



**Factors that would motivate KS at the DCs**

If an employee feels threatened in their job, they might be less likely to share their knowledge. The knowledge they have at this stage might be too valuable to share, and the employee might only use it for the purposes of survival. Sharing knowledge in this instance, might empower the receiver of the knowledge, and disempowers the knower- in this instance employees certainly regard their knowledge as power (during restructurings and economic slumps)

External factors- rewards for sharing. Employees, who are rewarded (Career Progress and or Cash Incentive) for sharing their knowledge with others, are more likely to share their knowledge. From the survey and interview responses, it became clear that employees are more likely to share knowledge when there is a relationship of trust.

The absence of trust is a major barrier for KS anywhere-. Employees responded unanimously to this question. Employees refuse to share information (unless they are forced) with people they do not trust, but in the presence of trust they might not only share but may even listen from others.

In the presence of a KS friendly environment, this relate to the organisation's code of ethics and disciplinary code. Current occurrences like the restructuring for example are a form of an unfriendly knowledge sharing environment. Other cultural factors that are important for knowledge sharing as per the research respondents are summarised as follows:

**Relationship:** There is need for a great relationship between the sender (person who shares) and the receiver of the knowledge. In addition to trust, they might have to "like" each other.



**Possibility to excel:** People are encouraged to share their knowledge, when the act of sharing makes it possible for them to excel. This comes with the satisfaction of being of value to someone else, and the desire to deliver a great service.

**Success and sense of achievement:** certain respondents indicated that their desires to see their departments perform, and becoming the benchmarks in the organisation-encouraged them to share knowledge. This is further encouraged through what one respondent called "structured set up". Recognition was also highlighted, as a key cultural motivator for KS. In addition to this, the respondents also stated that maturity in one's career; where a person is confident on his or herself and his or her achievements is great for KS.

**Recommendations**

In order to encourage KS at the DCs the organisation should look at:

- **Creation of more awareness on KS:** Many of the respondents were actively engaging in KS without knowing that they were. If they knew that they were, and better understood the value derived from it, they could have done it better.

- **The offering of Rewards and Recognition for KS:** People are reluctant to share their ideas, so motivating them with some rewards could help setting up an effective KS culture. Kim and Lee (2006) suggest that there is a need for sufficient reward system to measure employees' performance. It is an important structural element which has a huge influence to improve KS in an organisation. Yao, Kam and Chan (2007) think that a lack of incentives can be a major barrier to KS across cultures.

Kankanhalli (2005) displays that organisational reward such as promotion, bonus, and higher salary have been positively related to the frequency of knowledge contribution made to KM System, especially when employees identify with the organisation. It should be noted however, that Bock et al. (2005); argue that anticipated extrinsic rewards have a negative effect on attitudes toward KS. Similarly, the absence of transparent rewards and recognition systems can hamper KS (Joshi, Parmer and Chandrawat, 2012).

There is a need for KS strategy which should be supported by top management and which requires a good KM infrastructure. As a result, management at the organisation (DCs) should design an incentive programme, which should aim to encourage knowledge sharing amongst employees. This should encourage employees to share what they know more. Performance appraisals happen twice per annum, and throughout the year all are remunerated "equally"- those who share knowledge should be provided an additional benefit.



- **Creating a relationship of trust amongst employees:** Hamidi et al (2012) are of the opinion that appropriate organisational structure and culture increase interaction and trust among employees and consequently enhance KS. In this regard, it is therefore important to create the necessary conditions for KS, like encouraging trust among employees. This can promote shared values and goals of the organisation (Hamidi et al, 2012). It can also benefit the DCs to design cooperative teams, since an organisational climate that emphasises individual competition may pose a barrier to KS (Joshi, Parmer and Chandrawat, 2012). When employees have a close relationship, the chances to share knowledge is higher (Chow and Chan, 2008). Literature in this area suggests that in the absence of trust, employees are less likely

to share what they know. The implementation of a mentor-mentee programme could proof valuable in encouraging trust.

- **Promoting KS across different cultural groups:** Given the Political history of the country, many organisations are challenged with the reality of a culturally diverse workforce. It is highly likely, as observed at the DCs that certain groups tend to be more inclined to associating amongst themselves only. Regular team building sessions could assist in addressing this challenge.
- **Ensuring a KS friendly environment prevails:** this environment can come about by making sure that all those factors like trust and incentives are present to encourage KS. When the environment encourages employees to share what they know- they would most certainly do so.
- **Introduce KS as an Indicator on the KPI's:** Few respondents indicated that their ability to share knowledge is measured on their KPI. These were also the employees that indicated that they are more prone to knowledge sharing. However, not all employees at the DC are measured on this- making KS a standard variable on the KPI may proof valuable for KS.
- **Clear succession planning programmes:** The ability to excel in the organisation has been stated as a major contributor to KS. Very often employees sit too long in the same position, and then become despondent. These employees are normally eager to share their knowledge in the beginning, assuming it improve their abilities to excel. As time progresses and in the absence of properly marked roadmaps, such employees can become despondent and stop sharing what they know- they switch over to survival mode.
- **Senior Management support of KS:** Executives' perceptions on the relative advantage of KS for the business, compatibility to existing business process, and complexity to encourage KS serve as mediators between organisational climate and an organisation's intention to encourage KS (Lin and Lee, 2006). This indicates that organisational leaders should promote formal and informal communities and knowledge oriented practices in the organisations for employees to be able to interact and share expertise.

Senior leaders should also invest in staffing and training systems that focus on selecting employees who have specific knowledge, skills, abilities, or competencies or

help employees acquire them (Wang and Noe, 2010). It is absolutely critical that the Senior Mangers support KS within the organisation. All respondents indicated that they believe this is happening. However, very few of them are able to motivate their responses. The senior management's support should not be invisible, and be clearly understood.

**DC specific recommendations**

**Western Cape**

- **Encourage employees to explore and experiment:** Respondents felt that they are allowed to explore, only to fail once. This "policy" will discourage employees to make any other suggestions, once they failed. It is often said, that one has to keep trying; in this regard the DC should open a forum that discuss ideas and their feasibility. Employees should be assured that their ideas will not be discarded of as useless.



**Gauteng**

- **The importance of managers to frequently examine knowledge for errors and mistakes:** The DC should introduce forums and discussion sessions, where they explain to employees, the importance for managers to search for errors and mistakes in their work. These sessions should carry the message across, that searching for knowledge and errors is in the best interest of efficiency and effectiveness, which ultimately benefits all employees.
- **Encourage employees to interact with others within the DC:** The departments studied at the DC, were physically located a few kilometres from each other. Unlike in the WC, where employees could walk to their colleagues in other departments, employees at Gauteng DC will have to drive. This have a negative effect on face to face communication and interaction. In this scenario, it would be beneficial for the organisation to have regular team building sessions, within and across different departments.

**Contributions of the study**

The findings of this study can assist FMCG DCs in better recognise and understand the way in which knowledge can be shared amongst employees. It can help the

management to implement an effective KS system, and possibly assist in developing more strategies for KS success in the future.

The study can also contribute to an understanding of how organisational, team, and individual characteristics influence individual KS. It may assist in the understanding of factors that influence KS between employees. This is important because team and organisational level knowledge can be influenced by the extent to which KS occurs between employees (Cabrera and Cabrera, 2005; and Gupta and Govindarajan, 2000).

The findings would add to the existing Literature on KS research. As stated above, the findings might be of benefit to the DCs studied, especially since the following have been identified:

- The factors that motivate (Reward and recognition programmes, trust amongst employees and Senior Management support for example) and discourage (Job insecurity and trust issues for example) KS at the DCs and other organisations in general;
- The study also investigated the contributions of technology (which is adequate in this case), culture (which could be even better) and organisational structure (which is adequate too) in the process of KS;
- It also looked at general Management perceptions on KS at the DCs;
- Furthermore, it also explored and provided a better understanding of how knowledge is shared at the DCs and
- The findings provided subsequent recommendations that could be of benefit to the DCs that were investigated to form the basis for future studies on KS.

The study contributes to the academic arena and the private sector at the same time in a number of ways. It would certainly help the organisation under investigation to understand how knowledge can be shared and how technology, culture and organisational structure contribute to KS. The study highlighted the elements that encourage and discourage KS within the organisation.

**Limitations of the study**

Despite the richness of the data, a few limitations were identified. The entire population amounted to 26 people because the DCs were small ones. Given that knowledge exists at all levels of the organisation (Ipe, 2003), and the research was limited to "Managers" only, is a limitation on its own. Ideally people from all levels within the organisation, should have been selected for the research.

In the study, conducted by Gold, Malhotra and Segars (2001), multiple-item measures were used, since single item measures generally frame concepts narrowly. Multiple-item measures are generally thought to enhance confidence that the constructs of interest are being accurately assesses and the measurement of the variable will be more consistent (Gold, Malhotra and Segars, 2001: 192).

They (Gold, Malhotra and Segars) also used a Likert scale which provides the advantage of standardising and quantifying relative effects. Due to the small population (26 Managers), the researcher couldn't use multiple-item measures. The researcher could however, have done correlation and or factor analysis. Correlation analysis is a commonly used technique for investigating the relationship between two quantitative variables.



The survey questions used however have been tested in other research. The language was only simplified to make sense in the context of the DCs. The study focussed on KS at the two DCs, hence the findings of the study should be limited to the particular DCs, or at best only be generalised to DCs of similar size within the FMCG industry. As a result of the small sample, the findings should be carefully analysed to make sense within the context of the entire organisation.

These limitations however, did not influence the validity of this study and its contributions.

**Recommendations for future research**

Future research should continue to examine KS from a social exchange perspective which can provide insights that have yet to be examined. More research is needed to identify and investigate how technology contributes to KS. Literature (Gupta and

Govindarajan, 2000; Renzl, 2008), suggests that knowledge can be considered a source of power and superiority, and recommends incentives to motivate employees to share their knowledge, but few studies have directly examined KS from a power perspective- this leaves a gap, that should be explored.

More research is also needed to help us understand the relationship between team characteristics and KS in terms of size, gender, educational levels, culture, home language- make up and how they contribute towards KS. Most of the literature reviewed, were conducted using electronic systems as a major form of KS. Future research could investigate how face-to-face KS differ from electronic KS, and which of the two may be better.

Culture appears to be a critical success factor for KS. More research to help us understand how a KS culture can be promoted is necessary. Given the limited scope for generalising from this research, it is recommended that this study be repeated, through surveying employees from all levels within a FMCG DC. This study made use of a 5 point Likert scale to look for consensus and disagreements, and a Qualitative interview. It is recommended that a bigger sample be used and quantitative analysis be performed.



The findings of this study are interesting, and the researcher believes that it is consistent with other prevailing research on this topic (Mills and Smith, 2011; Ho, 2009; Hamidi et al., 2012; Gold, Malhotra and Segars, 2001; McAdam and Parkinson, 2003). Factors that weren't focused on, like "the influence of internal Politics on KS" came through strongly in the responses; this would therefore require further examination.

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# APPENDICES

## Appendix A- Introduction Letter

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

SCHOOL OF BUSINESS & FINANCE

**Introduction Letter**

My name is Chadrick George. I am doing a Master's degree in Management at the University of the Western Cape. For this degree I must conduct a study that is entitled "Knowledge infrastructure capabilities and knowledge sharing: the case of a large Fast Moving Consumer Goods distribution center in the Western Cape". I can be contacted on 071 881 4894 or 2103373@uwc.ac.za

My supervisor is Professor Visvanathan Naicker at the Graduate School of Business Leadership, University of South Africa. He can be contacted on 011 652 0223 or naickv@unisa.ac.za if you need to confirm my study.

To get the information I need for this study, I will be asking various people who participate in knowledge management and sharing within the distribution center to complete a questionnaire. The project has a strong focus in identifying the benefits and advantages of knowledge sharing.

To identify the infrastructure capabilities, I would like respondents to complete a basic questionnaire regarding their understanding of knowledge sharing within the distribution center. The questionnaire will take approximately 15 minutes to complete. This information sheet is for you to keep so that you can be aware of the purpose of the interview. With your signature below you show that you understand the purpose of the survey.

Yours faithfully

Chadrick George

Signature of Participant: ……

Date: ……

## Appendix B- Survey Consent Form

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

SCHOOL OF BUSINESS & FINANCE

**Consent Form: Survey Questionnaire**

My name is Chadrick George. I am doing a Master's degree in Management at the University of the Western Cape. For this degree I must conduct a study that is entitled "Knowledge infrastructure capabilities and knowledge sharing: the case of a large Fast Moving Consumer Goods distribution center in the Western Cape".

My contact number is 071 881 4894. My supervisor is Professor Visvanathan Naicker at the Graduate School of Business Leadership, University of South Africa. He can be contacted on 011 652 0223 or naickv@unisa.ac.za.

I …….. (Full name of participant) hereby confirm that I understand that the questionnaire is for a research project and that the information I give will be used towards a Master's degree and other academic publications.

I consent to participating in the research project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

I also understand that my identity will be kept secret unless I give my express consent in writing. I also understand that all potentially harmful information I give will be kept confidential unless I consent expressly to it being used in public.



I understand that the findings of the research will be available to me upon request.

Signature of Participant: ……..

Date: ……

## Appendix C- Interview Consent Form

FACULTY OF ECONOMIC AND MANAGEMENT SCIENCES

SCHOOL OF BUSINESS & FINANCE

**Consent Form: Interviews**

My name is Chadrick George. I am doing a Master's degree in Management at the University of the Western Cape. For this degree I must conduct a study that is entitled "Knowledge infrastructure capabilities and knowledge sharing: the case of a large Fast Moving Consumer Goods distribution center in the Western Cape".

My contact number is 071 881 4894. My supervisor is Professor Visvanathan Naicker at the Graduate School of Business Leadership, University of South Africa. He can be contacted on 011 652 0223 or naickv@unisa.ac.za.

I …….. (Full name of participant) hereby confirm that I understand that the interview is for a research project and that the information I give will be used towards a Master's degree and other academic publications.

I consent to participating in the research project. I understand that I am at liberty to withdraw from the project at any time, should I so desire.

I also understand that my identity will be kept secret unless I give my express consent in writing. I also understand that all potentially harmful information I give will be kept confidential unless I consent expressly to it being used in public.



I understand that the findings of the research will be available to me upon request.

Signature of Participant: ……..

Date: ……

## Appendix D- Western Cape DC survey results

| |
|---|
| The purpose of this survey is to determine how technology, organizational structure and culture contribute to the knowledge infrastructure; and how the knowledge infrastructure capability contribute to knowledge sharing at a large Fast Moving Consumer Goods (FMCG) distribution center in the Western Cape. |

The survey was composed from validated survey questionnaires and reviewed literature. The responses that you give may prove valuable in understanding knowledge sharing within the distribution center. Please complete all the questions with the appropriate marking symbol (X). This should require about 15 minutes of your time. You will remain anonymous and answers will be handled confidentially.

### 1. Demographical Data (Please mark with an "X")

| | | | | | |
|---|---|---|---|---|---|
| Age | 18 – 30 | 31 – 40 (27%) | 41 – 50 (46%) | 51 – 60 (27%) | 60 + |

| | | |
|---|---|---|
| Gender | Male (80%) | Female (20%) |

| | | | | | |
|---|---|---|---|---|---|
| Race | African (7%) | Colored (33%) | White (53%) | Indian (7%) | Other |

| | | | | |
|---|---|---|---|---|
| Highest Qualification | Below Grade 12 | Grade 12 (27%) | University /College e.g. BSc/ BTech/ Diploma (53%) | Post Graduate e.g. PhD/ M.Com/ MTech/ MSc (20%) |

| | | | | | |
|---|---|---|---|---|---|
| Home Language | English (33%) | Afrikaans (60%) | isiXhosa | isiZulu (7%) | Other |

| | | | |
|---|---|---|---|
| Job Grade | 11 – 12 (46%) | 13 – 14 (27%) | Executive (27%) |

Questions 2-4 will describe your understanding (and or view) of the contributions made by technology, organizational structure and culture, as elements of the knowledge infrastructure capability.

### 2. Technological KM infrastructure (Please mark with an "X")

| | My DC uses technology that allows… | Strongly Disagree | Disagree | Unsure | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | Employees to work together with other persons inside the DC e.g. Milling. | | | | 87% | 13% |
| 2 | Employees to work together with | | | | 93% | 7% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | other persons outside the DC e.g. Customers. | | | | | |
| 3 | It to search for new knowledge. | 7% | 27% | 7% | 45% | 14% |
| 4 | It to get back (retrieve) and use knowledge about its products and processes. | | 7% | 20% | 66% | 7% |
| 5 | Generate new opportunities together (in conjunction) with other divisions e.g. Milling. | | 27% | 7% | 59% | 7% |
| 6 | People in different locations to learn as a group (teleconferencing). | 7% | 45% | 14% | 27% | 7% |
| 7 | It to map the location (i.e., an individual, specific system, or database) of specific types of knowledge. | 7% | 14% | 20% | 59% | |



**3. Structural KM infrastructure (Please mark with an "X")**

| | My DC(s')… | Strongly Disagree | Disagree | Unsure | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | Structure of departments and divisions (Orders and Dispatch) promotes working together and sharing of knowledge. | | | 7% | 79% | 14% |
| 2 | Structure promotes working in a team (collective) rather than working alone behaviour. | | | 7% | 66% | 27% |
| 3 | Structure assists with (facilitates) | | 20% | 27% | 53% | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | the discovery and creation of new knowledge. | | | | | |
| 4 | Encourages employees to go where they need for knowledge regardless of structure. | | 33% | | 60% | 7% |
| 5 | Managers frequently examine knowledge for errors/mistakes. | | 14% | 27% | 52% | 7% |
| 6 | Employees are readily accessible | | | 7% | 73% | 20% |
| 7 | Structure assists with (facilitates) the transfer of new knowledge across structural boundaries. | | 14% | 27% | 59% | |
| 8 | Bases our performance on knowledge creation. | | 7% | 20% | 66% | 7% |



**4. Cultural KM infrastructure (Please mark with an "X")**

| | In my DC… | Strongly Disagree | Disagree | Unsure | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | Employees understand how important what they know is to the success of the department. | | 13% | | 74% | 13% |
| 2 | Employees are encouraged to explore and experiment. | | 33% | 7% | 47% | 13% |
| 3 | Employees are valued for their individual expertise. | | 7% | | 79% | 14% |
| 4 | Employees are encouraged to mingle (interact) with others, and to discuss their work. | | 7% | 7% | 59% | 27% |
| 5 | Organisational vision – and objectives are clearly stated. | | | | 67% | 33% |
| 6 | On-the-job training and learning are valued. | | | | 80% | 20% |
| 7 | It is clear that Senior management (National Managers, General managers and Directors) clearly support the role of knowledge in our firm's success. | | 7% | 7% | 66% | 20% |
| 8 | The benefit of training and coaching other employees is better than how much it cost in time and money. | | 14% | 7% | 65% | 14% |

5. The following statements describe your feeling (and or views) about knowledge sharing in your distribution center. (Please mark with an "X" your feeling or view)

| | In my DC… | Strongly Disagree | Disagree | Unsure | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | It is better to show and explain to employees how to do a job. | | | | 73% | 27% |
| 2 | Employees are not likely to share knowledge without strong personal motivation. | | 47% | | 47% | 7% |
| 3 | Employees regard knowledge as power (the more knowledge one has the more powerful he/she is)… | | 14% | 7% | 65% | 14% |
| 4 | Reciprocity (the mutual give-and-take) is seen as a motivator for knowledge sharing by employees. | 7% | 20% | 27% | 56% | |
| 5 | The motivation to share knowledge is enhanced by trust. | | 7% | | 93% | |
| 6 | The motivation to share knowledge is enhanced by the power and status of recipient. | | 14% | 14% | 65% | 7% |
| 7 | We should stay away from explaining and communicating in writing- unless if you need to keep proof. | | 60% | 14% | 27% | |

6. The following statements describe your general feelings and beliefs about technology, organizational structure and the culture at your DC. (Please mark with "X' the option you feel best describe your beliefs)

| As a Manager I believe that… | Strongly Disagree | Disagree | Unsure | Agree | Strongly Agree |
|---|---|---|---|---|---|
| Head office spends too much on technology e.g. SAP. | 20% | 73% | | 7% | |
| Technology helps us to better do our work. | | 7% | | 33% | 60% |
| The time and money spend on technology is a waste (could have been spent better). | 40% | 53% | | 7% | |
| There is nothing wrong with the way employees communicate and work with each other. | | 27% | 14% | 59% | |
| Head office should stop spending on technology. | 46% | 46% | | 8% | |
| Head office should spent more on culture | | 40% | 20% | 40% | |
| The DC's culture, and fitting in with it is important for success. | | 7% | 7% | 79% | 7% |
| The DC's culture affects employees positively. | | 7% | 27% | 52% | 14% |
| There is too much red tape for decision making. | 7% | 33% | 7% | 33% | 14% |
| There are groups which share knowledge between themselves only. | 14% | | 27% | 59% | |

Thank you for your time and cooperation
If you have any questions regarding this survey, please feel free to contact the researcher, Mr. Chadrick George through any of the following contact details.
2103372@uwc.ac.za - 071 881 4894 – (021) 507 9927

Or my supervisor Professor Visvanathan Naicker on (011) 652 0223 or naickv@unisa.ac.za

## Appendix E- Gauteng DC survey results

| |
|---|
| The purpose of this survey is to determine how technology, organizational structure and culture contribute to the knowledge infrastructure; and how the knowledge infrastructure capability contribute to knowledge sharing at a large Fast Moving Consumer Goods (FMCG) distribution center in the Western Cape. |

The survey was composed from validated survey questionnaires and reviewed literature. The responses that you give may prove valuable in understanding knowledge sharing within the distribution center. Please complete all the questions with the appropriate marking symbol (X). This should require about 15 minutes of your time. You will remain anonymous and answers will be handled confidentially.

### 1. Demographical Data (Please mark with an "X")

| | | | | | |
|---|---|---|---|---|---|
| Age | 18 – 30 | 31 – 40 (55%) | 41 – 50 (18%) | 51 – 60 (27%) | 60 + |

| | | |
|---|---|---|
| Gender | Male (73%) | Female (27%) |

| | | | | | |
|---|---|---|---|---|---|
| Race | African (55%) | Colored | White (45%) | Indian (7%) | Other |

| | | | | |
|---|---|---|---|---|
| Highest Qualification | Below Grade 12 | Grade 12 (9%) | University /College e.g. BSc/ BTech/ Diploma (91%) | Post Graduate e.g. PhD/ M.Com/ MTech/ MSc |

| | | | | | |
|---|---|---|---|---|---|
| Home Language | English (9%) | Afrikaans (27%) | isiXhosa | isiZulu (27%) | Other (27%) Venda and Sepedi |

| | | | |
|---|---|---|---|
| Job Grade | 11 – 12 (73%) | 13 – 14 (18%) | Executive (7%) |

Questions 2-4 will describe your understanding (and or view) of the contributions made by technology, organizational structure and culture, as elements of the knowledge infrastructure capability.

### 2. Technological KM infrastructure (Please mark with an "X")

| | My DC uses technology that allows… | Strongly Disagree | Disagree | Unsure | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | Employees to work together with other persons inside the DC e.g. Milling. | | | | 82% | 18% |
| 2 | Employees to work together with | | 9% | | 64% | 27% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | other persons outside the DC e.g. Customers. | | | | | |
| 3 | It to search for new knowledge. | | 27% | | 73% | |
| 4 | It to get back (retrieve) and use knowledge about its products and processes. | | 18% | | 73% | 9% |
| 5 | Generate new opportunities together (in conjunction) with other divisions e.g. Milling. | 18% | 9% | | 64% | 9% |
| 6 | People in different locations to learn as a group (teleconferencing). | 9% | 27% | | 55% | 9% |
| 7 | It to map the location (i.e., an individual, specific system, or database) of specific types of knowledge. | | 27% | 9% | 64% | |



**3. Structural KM infrastructure (Please mark with an "X")**

| | My DC(s')… | Strongly Disagree | Disagree | Unsure | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | Structure of departments and divisions (Orders and Dispatch) promotes working together and sharing of knowledge. | | 9% | | 73% | 18% |
| 2 | Structure promotes working in a team (collective) rather than working alone (individualistic) behaviour. | 9% | | | 55% | 36% |
| 3 | Structure assists with (facilitates) the discovery and creation of new knowledge. | | 18% | | 73% | 9% |
| 4 | Encourages employees to go where they need for knowledge | 18% | 18% | | 55% | 9% |

| | | | | | | |
|---|---|---|---|---|---|---|
| | regardless of structure. | | | | | |
| 5 | Managers frequently examine knowledge for errors/mistakes. | 9% | 27% | 9% | 46% | 9% |
| 6 | Employees are readily accessible | | 9% | 9% | 64% | 18% |
| 7 | Structure assists with (facilitates) the transfer of new knowledge across structural boundaries. | | 18% | | 64% | 18% |
| 8 | Bases our performance on knowledge creation. | 9% | 36% | | 55% | |

**4. Cultural KM infrastructure (Please mark with an "X")**

| | In my DC… | Strongly Disagree | Disagree | Unsure | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | Employees understand how important what they know is to the success of the department. | 9% | 9% | | 73% | 9% |
| 2 | Employees are encouraged to explore and experiment. | 9% | 27% | | 46% | 18% |
| 3 | Employees are valued for their individual expertise. | 9% | | | 82% | 9% |
| 4 | Employees are encouraged to mingle (interact) with others, and to discuss their work. | | 36% | | 46% | 18% |
| 5 | Organisational vision – and objectives are clearly stated. | | 9% | | 73% | 18% |
| 6 | On-the-job training and learning are valued. | 9% | 9% | | 73% | 9% |
| 7 | It is clear that Senior management (National Managers, General managers and Directors) clearly support the role of knowledge in our firm's success. | | 9% | 18% | 73% | |
| 8 | The benefit of training and coaching other employees is better than how much it cost in time and money. | | 27% | | 55% | 18% |

5. The following statements describe your feeling (and or views) about knowledge sharing in your distribution center. (Please mark with an "X" your feeling or view)

| | In my DC… | Strongly Disagree | Disagree | Unsure | Agree | Strongly agree |
|---|---|---|---|---|---|---|
| 1 | It is better to show and explain to employees how to do a job. | | | | 73% | 27% |
| 2 | Employees are not likely to share knowledge without strong personal motivation. | | 27% | | 55% | 18% |
| 3 | Employees regard knowledge as power (the more knowledge one has the more powerful he/she is)… | | 18% | 9% | 64% | 9% |
| 4 | Reciprocity (the mutual give-and-take) is seen as a motivator for knowledge sharing by employees. | | 27% | | 73% | |
| 5 | The motivation to share knowledge is enhanced by trust. | | 9% | | 73% | 18% |
| 6 | The motivation to share knowledge is enhanced by the power and status of recipient. | 9% | 45% | 9% | 36% | |
| 7 | We should stay away from explaining and communicating in writing-unless if you need to keep proof. | 27% | 27% | 9% | 27% | 9% |



6. The following statements describe your general feelings and beliefs about technology, organizational structure and the culture at your DC. (Please mark with "X' the option you feel best describe your beliefs)

| As a Manager I believe that… | Strongly Disagree | Disagree | Unsure | Agree | Strongly Agree |
|---|---|---|---|---|---|
| Head office spends too much on technology e.g. SAP. | 18% | 46% | 9% | 27% | |
| Technology helps us to better do our work. | | | | 64% | 36% |
| The time and money spend on | 18% | 64% | | 9% | 9% |

| | | | | | |
|---|---|---|---|---|---|
| technology is a waste (could have been spent better). | | | | | |
| There is nothing wrong with the way employees communicate and work with each other. | 9% | 36% | | 55% | |
| Head office should stop spending on technology. | 36% | 46% | | 18% | |
| Head office should spent more on culture | 9% | 46% | 9% | 27% | 9% |
| The DC's culture, and fitting in with it is important for success. | | 9% | 18% | 55% | 18% |
| The DC's culture affects employees positively. | | 18% | | 73% | 9% |
| There is too much red tape for decision making. | | 18% | 9% | 73% | |
| There are groups which share knowledge between themselves only. | | 18% | 18% | 64% | |

Thank you for your time and cooperation
If you have any questions regarding this survey, please feel free to contact the researcher, Mr. Chadrick George through any of the following contact details.
2103372@uwc.ac.za - 071 881 4894 – (021) 507 9927

Or my supervisor Professor Visvanathan Naicker on (011) 652 0223 or naickv@unisa.ac.za

## Appendix F- Interview questions

**The purpose of these Interview Questions is to probe your understanding of how technology, organizational structure and culture contribute to the knowledge infrastructure; and how the knowledge infrastructure capability contribute to knowledge sharing at a large Fast Moving Consumer Goods (FMCG) distribution center in the Western Cape.**

**Interview Question**

| Research Questions | Interview Questions |
|---|---|
| How does technology contribute to the knowledge infrastructure at the distribution center? | (1) How do you use technology to monitor competitors and partners?<br>(2) How does technology encourage employees to work together inside and outside the distribution center?<br>(3) How does technology ensure that people in different locations can learn as a group from a single source (teleconferencing)?<br>(4) How does technology assist in the retrieval and use of knowledge about products and processes?<br>(5) When and how does technology contribute to the generation of new opportunities? |
| How does the organizational structure contribute to the knowledge infrastructure at the distribution center? | (6) How does the structure of departments and divisions encourage interaction and knowledge?<br>(7) How does the structure assist with the discovery and or creation of new knowledge?<br>(8) When is performance based on knowledge creation?<br>(9) When and where are employees encouraged to search for knowledge?<br>(10) How often do managers search through knowledge for error or mistakes?<br>(11) How does the organisational structure ensure the transfer of new knowledge across departments and |

| | |
|---|---|
| | divisions?<br>(12) When do you find that employees are readily accessible to assist others? |
| How does culture contribute to the knowledge infrastructure at the distribution center? | (13) How and when do employees show their understanding of the importance of knowledge to corporate success?<br>(14) How do you encourage employees to explore and experiment?<br>(15) What do you think are the value in on-the-job training and learning to:<br>(a) the employee<br>(b) the distribution center<br>(16) How do you demonstrate your appreciation of individual expertise to employees?<br>(17) How do you encourage co-operation amongst employees within and across groups?<br>(18) How is the organization's vision articulated or stated?<br>(19) When do you share knowledge with other distribution centers?<br>(20) How do the benefits of knowledge sharing outweigh the costs?<br>(21) How do Senior Managers support the role of knowledge sharing? |
| How does the knowledge infrastructure capability contribute to knowledge sharing at the distribution center? | (22) How does the nature of knowledge (tacit versus explicit) influence the way it is shared?<br>(23) When do you find that employees are more likely to share knowledge?<br>(24) In your opinion: what type of view do employees have of knowledge?<br>(25) What is the benefit of mutual give-and-take (reciprocity) with regard to knowledge sharing?<br>(26) What motivate employees to share knowledge? |



Thank you for your time and cooperation
If you have any questions regarding this survey, please feel free to contact the researcher, Mr. Chadrick George through any of the following contact details.
2103372@uwc.ac.za - 071 881 4894 – (021) 507 9927

Or my supervisor Professor Visvanathan Naicker on (011) 652 0223 or naickv@unisa.ac.za