ESTABLISHING KNOWLEDGE MANAGEMENT FOR COMPETITIVE ADVANTAGE IN AN ENTERPRISE

by

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SUMMARY

Enterprises are becoming more dependent on people than ever before and in the twenty first century, an enterprise's survival and success will highly depend on the ability to manage knowledge as a source for competitive advantage. This study is concerned with the establishment of a knowledge management program that will ensure sustainable competitive advantage within the enterprise.

The main problem under investigation is to assess the importance of knowledge management within an enterprise and to ascertain how knowledge management can ensure sustained competitive advantage in an enterprise. In the first three chapters of the study a literature survey is done to get a better understanding of what knowledge management is, the importance of corporate culture when implementing a knowledge management program and how knowledge management can be a source for sustainable competitive advantage or business edge. The advancement in information technology has allowed enterprises to leverage people's knowledge onto higher competitive level by improving competencies and processes, reducing mistakes, etc. and the optimal application of knowledge in a knowledge-based environment is playing an ever-increasing role in enterprise success.

The second part of the study was an empirical study where a qualitative research was conducted in the Eskom Transmission Group. The aim of the research was to investigate understanding of the knowledge management concept amongst business leaders, determine enablers and barriers to implementing a knowledge management, and to also determine whether knowledge is seen as a source for competitive advantage. Structured interviews were conducted with ten business leaders in the Eskom Transmission Group. The data obtained from the interviews were analysed and interpreted according to the grounded theory.
It was found that although knowledge management is old but as a formalised concept in the business environment in South Africa it is new and there is no common definition or understanding of the concept. It is however evident that the need to manage knowledge is understood and its importance to the sustainability of the business. The majority of the respondents agree that people issues are critical to the success of knowledge management in an enterprise, as people own knowledge.

It is suggested that enterprises should adopt a holistic and integrated approach when establishing a knowledge management program. The holistic approach together with the framework and guidelines as given in chapter six would afford enterprises the ability to manage and harness their knowledge for sustainable competitive advantage. Broad recommendations for establishing a knowledge management program that will be a source of sustainable competitive advantage are proposed.
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LIST OF ABBREVIATIONS AND ACRONYMS

CEO Chief Executive Officer
CKO Chief Knowledge Officer
CLN Customer Load Network
ED Executive Director
K Knowledge
MW Megawatt
RAU Rand Afrikaans University
VRIO Value, Rareness, Imitability and Organisation
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CHAPTER 1
THE PROBLEM AND ITS CONTEXT

This study is concerned with developing a framework for establishing a knowledge management program that will ensure sustainable competitive advantage in an enterprise. The primary issue is to assess the relevance and impact of knowledge management within an enterprise. This study addresses these issues, by proposing a framework for developing a knowledge management program within an enterprise.

In particular this study investigates how knowledge management can be a source of competitive advantage to the enterprise, and how managers within the enterprise perceive knowledge management. The problem under investigation is formulated against the background of global and national trends. The research methodology of the research is outlined and research expectations and sub-problems are identified. The need for the study is justified, and a division and outline of chapters are presented.

1.1 BACKGROUND TO THE PROBLEM

Authors have described this century differently, some have called it the “age of unreason” (Handy, 1990), others talk of the information age or knowledge society/economy. Whatever concept is used to describe the century, we are in the middle of a total revolution in the business world. We are in the era when accelerating rates of change are common in almost every sector of people’s lives and impact the way businesses are run. In less than a few months, we will witness the close of the 20th century. What further changes will have occurred in the next few months of this decade can only be guessed.

The reason it is so difficult to look into the future with certainty is that we are in a very dynamic environment. The challenge to today’s enterprise is to shift the
emphasis from competing for today, to focusing on competing for tomorrow, that is ensuring sustained competitive advantage. This means that enterprises need to look at how they can increase efficiency and effectiveness, at the same time improve customer service and the marketing mix. As Galbraith, et al (1993:1) outline, “Organisations must adapt to this fact if they are to survive”.

Knowledge is firmly on the agenda of many enterprises and for the majority of these enterprises it is knowledge, rather than capital or labour that is the key element of success. This fact is even supported by Paye (1996) in his statement: “Knowledge is now a crucial factor underpinning economic growth... All sectors of the economy rely increasingly on knowledge.” In the Business Times of The Sunday Times paper on the 7th of March 1999 Helen Vandevelde in her article “How to win in a global economy” highlights the following as the sources of wealth in the information age; knowledge, learning and innovation.

Knowledge management has become the “buzz” word. In the past year there has been a number of conferences on knowledge management world-wide. Individuals have written numerous books and articles on the subject of knowledge management from varying field backgrounds. Hence managing an enterprise’s knowledge more effectively and exploiting it in the marketplace has become the latest pursuit for those seeking competitive advantage.

However for knowledge management to be value adding, one needs to create and nurture a culture where knowledge is valued and shared openly. Creating a knowledge friendly culture, one of the most crucial factors of success for a knowledge management project, is very difficult. It requires strong leadership and change of both attitudes and behaviours. When knowledge management is introduced properly, with concurrent efforts to manage change in the enterprise great things are achieved. It has enabled enterprises to be more competitive, to do more in a shorter period of time.

Besides providing an understanding of what knowledge management is, highlighting the common drivers for an increased focus on knowledge
management, it is hoped that the present study will test the importance of knowledge management in ensuring competitive advantage within an enterprise.

1.2 THE RESEARCH PROBLEM AND ITS SETTINGS

1.2.1 The Statement of the Problem
The main objective of this research is:
- To assess the relevance and impact of knowledge management within an enterprise.
- To ascertain how the knowledge management can ensure sustained competitive advantage in an enterprise.

1.2.2 The Subproblem
In conducting this research study the main subproblems are the following:
- To determine why knowledge management is essential to the business.
- To assess why corporate culture is important in establishing a knowledge management programme in an enterprise.
- To establish how knowledge management can be a resource for sustained competitive advantage.
- To develop a framework for establishing knowledge management within an enterprise.

1.2.3 The Hypotheses
- Knowledge management is important in ensuring competitive advantage within an enterprise.
- Corporate culture will impact the success or failure of the knowledge management initiatives.
- The development of guidelines for establishing knowledge management will ensure success within an enterprise.
1.2.4 The Limitations

The study will not attempt to predict success of knowledge management within an enterprise. The study will be limited to Eskom Transmission Group.

1.2.5 Assumptions

The following assumptions apply in this study:

- Knowledge management will be an even more important factor in determining the success or failure of enterprises in the 21st century.
- Corporate culture has a significant impact on knowledge management not vice versa.
- Knowledge management can ensure sustainable competitive advantage within an enterprise.

1.3 OUTLINE OF THE STUDY

This dissertation is organised as follows:

In chapter two knowledge management is defined and its importance in an enterprise is outlined. Chapter three gives an overview of corporate culture as a foundation for knowledge management. Chapter four describes how knowledge management can be a source for competitive advantage for the enterprise. These three chapters give a literature survey as well as background orientation with regard to the investigation.

In chapter five the need for the establishment of a knowledge management program within Eskom Transmission Group will be investigated. In chapter six guidelines for establishing a knowledge management program that will ensure competitive advantage for an enterprise will be discussed.
CHAPTER 2
KNOWLEDGE MANAGEMENT IN CONTEXT

This chapter explores from the theoretical point of view the phenomenon of knowledge management and what relevance it has to enterprises and for people who work in or with them. A clear understanding of the terms, knowledge and management is essential to understand the concept of knowledge management. The contexts and various levels of knowledge are debated, with this discussion adopting a holistic view of knowledge management.

This chapter will address the first subproblem, namely: "Why is knowledge management essential to an enterprise?"

2.1 BACKGROUND AND DEFINITIONS

The role of knowledge as the key source for competitive advantage in enterprises has become a hotly debated topic. Tom Peters said "Heavy lifting is out; brains are in." Winston Churchill also said, "The empires of the future are the empires of the mind." (Allee, 1997:71). Authors over ten years ago already saw the importance of knowledge as an essential business asset. It is therefore not surprising to see enterprises realising how important it is to 'know what they know' and to exploit knowledge to its maximum.

The idea that knowledge can be managed is fundamental to the related notions of the knowledge-based business, the learning enterprise, and the management of intellectual capital. The recent interest in these overlapping concepts reflects important phenomena which enterprises have to deal with, such as perceptions of increased competition, rates of change and market turbulence. Businesses are hence looking for new ways to remain in business or compete effectively. One crucial process of achieving effectiveness is to recognise or rediscover assets the enterprise
already has but is not utilising to their full potential. Notably, these could be employees, information and knowledge amongst other intangible assets. These assets provide opportunities to reduce costs and time to market, innovate, etc.

Because enterprises need to have a business edge or sustainable competitive advantage, they have realised the need to manage their knowledge assets and as a result knowledge management has evolved from being a “buzz” word to being part of today’s business language. It is thus important to understand what is knowledge management. Is it another management fad that promises to be the technique to manage enterprises effectively and competently? Or is knowledge management another new income stream for consulting businesses when other “buzz” words lose their splendour?

It is therefore crucial that we first understand what the terms knowledge and management mean before defining knowledge management.

2.1.1 Knowledge

Knowledge is a word that we use frequently and quite loosely but do we really understand it? What is knowledge? Is it the documents we work with? Is it the data in the computer database? Is it the understanding of individuals?

One would tend to agree with Sveiby (1997:29) when he highlights that the word knowledge in English seems to be a multifaceted thing. It can mean information, awareness, knowing, cognition, science, experience, skill, insight, competence, know-how, practical ability, learning, wisdom and so on.

In other words the word knowledge has been given various definitions and depends on the context in which the term is used based on the field background of the author. As only few definitions will be presented in this discussion, it is believed that some of the definitions will provide relevant perspectives to the discussion.
A simple definition of knowledge used commonly in the hierarchy of information by information professionals is that “knowledge is information with meaning.” The Concise Oxford Dictionary (1990) defines knowledge as a person’s range of information or a theoretical or practical understanding of a subject or language, etc. These two definitions require one to first have a clear understanding of what information is. The term information has also had various interpretations based on the background of the author. These definitions of knowledge are also not very helpful to individuals that would like to understand the field of knowledge management.

Sparrow (1998:44) explains the concept of knowledge based on the kinds of mental material, forms of thought and different types of thinking. He defines knowledge as follows:

“Knowledge is thus the product of particular kinds of mental material, being configured in particular forms and processed in particular ways”.

Dunham (1996:2) defines knowledge by making the differentiation between information and knowledge. He highlights that two of the most popular interpretations today are knowledge as understanding and knowledge as information, that is, we have knowledge if we understand something or we have knowledge if we have information in some form. Dunham point out the root of the problem as interpreting knowledge as understanding or information omits what is essential to produce results: action, the action that produces value for customers.

Eskom Consulting Services as quoted by Duffy (1997:30) defines knowledge as follows: “Knowledge is information that is understood and when applied, adds value to the organisation.” There is similarity between this definition and the one by
Dunham as both definitions stress application of knowledge and the value adding benefit to the enterprise. Sveiby (1997:37) also defines knowledge as a capacity to act.

Sveiby (1997:37) contends that the confusion between knowledge and information has caused managers to sink billions of rands in information technology ventures that yielded marginal results. He asserts that business managers need to realise that unlike information, knowledge is embedded in people and knowledge creation occurs in the process of social interaction.

A simple example as given by Dunham (1996:2) makes the point about knowledge very clear. He points out that in learning Chinese cooking, we might buy a cookbook and take a class. But knowledge of Chinese cooking is not the information in the book, and it is not the grasp of techniques developed in the class. These are just information and understanding. What constitutes knowledge, is the ability to do the cooking, to perform the action that produces a result of which a customer can say, “This is good Chinese food!” The information in the book and the understanding from the class are just enablers to producing knowledge and the effective actions to perform Chinese cooking.

At this point it would appear imperative to discuss briefly the development of knowledge so as to have a holistic understanding of the knowledge phenomenon.

2.1.2 The Development of Knowledge

Broadly the development of knowledge can be plotted on two dimensions (Figure 1.1) as depicted by Shukla (1997:106). The first dimension covering knowledge level is moving from tacit to explicit knowledge and the second dimension covering knowledge diffusion is from personal to common knowledge. The development of knowledge can thus be understood by its movement across the two dimensions.
Most discoveries originate from insights, which are hazy implicit thoughts, and eventually become usable, when it is in some tangible form, for example, a product. This therefore implies that to become useful knowledge must develop from a tacit to an explicit form.

Skyrme (1997:24) highlights that Nonaka and Takeuchi (1995) define tacit or implicit knowledge as that which: “is highly personal and hard to formalise. Subjective insights, intuitions and hunches fall into this category of knowledge.”

Explicit knowledge is defined by Skyrme (1997:24) as that which is written down or expressed in some tangible form. This can be interpreted to include information.

Figure 1.1 *The two dimensions of knowledge development*

(Taken from Shukla 1997)
Similar to Shukla's four stages of knowledge, the author sees knowledge to be at four levels or stages:

- **Discovered knowledge.** This level is the very initial phase of knowing where an individual conceives or perceives an idea based on the information gathered and given meaning. This stage could also be termed 'cognitive knowledge'. This knowledge is very personal and tacit. In other words at this level the knowledge is still deeply embedded in an individual's mind and very subjective. Knowledge at this stage is displayed through intuition, output-oriented skills or behavioural patterns.

- **Codified knowledge.** Cognitive knowledge is difficult to share, transfer and utilise. For it to be transferable and used it has to be in some tangible form like methods, document, trademark, service, etc. Codified knowledge is explicit but still personal. For example, a book expresses the thoughts and insights of an author. One can also mention that a product in any company codifies knowledge, as its existence is based on the insight/s of an individual or various individuals involved in existence of the product. As Shukla (1997:111) points out “the more knowledge a product embodies, the greater its value.” Therefore by codifying more knowledge in a product or document, its utilisation is increased.

- **Migratory Knowledge.** With the increased utilisation of codified knowledge, the knowledge becomes mobile and easily available. At this stage knowledge is explicit but more common and accessible. As Shukla (1997:111) puts it, “Once packaged... knowledge can move quickly and, often simultaneously, in many directions”. Understanding the business implications of migratory knowledge ensures proper management of knowledge-based resources within an enterprise as it is at this stage that competitors enhance the product by adding more knowledge to the product.
• **Invisible Knowledge.** Knowledge loses its character and is taken for granted the more it is spread. The more knowledge is commonly used, the more it gets absorbed and embedded in the habits and lifestyles of its users – and the less one is likely to notice it (Shukla, 1997:114). If we look at figure 1.1 we observe that invisible knowledge is tacit and common or shared. In today’s competitive environment it is crucial that in enterprises organisational knowledge becomes embedded in its employees and becomes their way of working in order to ensure competitive advantage. As Shukla (1997:115) puts it, “As knowledge spreads and becomes ubiquitous, it also becomes invisible and embedded in the unconscious of the user system. But in becoming so, it redefines the nature of the ground reality and the rules of the competitive game; it becomes the norm instead of remaining an exception.”

As invisible knowledge creates new norms, it assists us in understanding the changes that transform an enterprise or any other social system. Invisible knowledge is less likely to be stolen, as it is embedded in an enterprise’s way of doing things or organisational memory. Prahalad and Hamel (1990:85) describe this kind of knowledge as a company’s ‘core competence’ and define it as the ‘collective learning’ of the organisation.

### 2.1.3 Management

According to Best (1988:14) “management can be regarded as the control of a process or processes toward a specific target state or goal”. Even though Best’s definition of management was in trying to describe information management we can still apply some of his conclusion in terms of knowledge management. “It follows that knowledge is manageable if:

• The creation of knowledge is undertaken to contribute some purpose in the enterprise.
The relationship of knowledge to the achievement of the stated purpose can be clearly shown.

This relationship can be empirically tested.

For the purposes of this study management is regarded as consisting of the functions of planning, organising, leading and controlling people, products and services, in order to attain the enterprises aims, goals and objectives. At this stage it is appropriate to discuss and define the term knowledge management to ensure understanding of this term.

2.1.4 What is knowledge management?

Knowledge management is very important in the information age as people and enterprises need to manage the knowledge possessed by employees in an enterprise, for knowledge has in effect become a drawing force of our lives. Many authors have attempted to define knowledge management and the subject background of the author rules the definition that comes from each author. For instance, a management author will tend to emphasise the management side of knowledge management as one that comes from the information technology or systems background will tend to see knowledge management from the systems or technology perspective.

Having defined what knowledge is, can it really be managed? It would definitely be impossible to manage tacit knowledge, this therefore implies that we need to first manage the people correctly in order to ensure that they turn tacit knowledge into explicit knowledge which is tangible and can be shared. As indicated in the previous paragraph, even experts and practitioners disagree on something as fundamental as exactly what to call concerted efforts to capture, organise and share what employees know.
Macintosh (1998) defines knowledge management as involving the identification and analysis of available and required knowledge, and the subsequent planning and control of actions to develop knowledge assets so as to fulfil organisational objectives. This definition defines knowledge management by describing the process to follow in managing knowledge. It clearly states that first one needs to identify and analyse what knowledge is available or required within the enterprise, the next steps involve planning and controlling the actions taken to develop knowledge assets. The definition also emphasises the fact that knowledge is managed in order to fulfil the objectives of the enterprise.

Quintas, Lefrere and Jones (1997:387) regard knowledge management as a process, distinguishing knowledge management from the focus on resources and assets and therefore: “Knowledge management is the process of continually managing knowledge of all kinds to meet existing and emerging needs, to identify and exploit existing and acquired knowledge assets to develop new opportunities.” This definition provides heuristics for management practice and education and highlights managing of knowledge in order to ensure competitive advantage.

Having discussed and read the various definitions of knowledge management, one will thus adopt the following definition for the purpose of this study: “Knowledge management is the planning, organising, directing and controlling of knowledge within an enterprise. Knowledge management is viewed as using technologies and techniques effectively and efficiently to manage knowledge assets and resources for meaningful dialogue and understanding to enhance proactive decision making and problem solving to achieve the aims, goals and objectives on a personal, operational, organisational and strategic levels of the enterprise for the competitive advantage and to improve performance of the enterprise.”
According to Myers (1996:2) knowledge resides in people’s heads, for after all, individuals must identify, interpret, and internalise knowledge. For knowledge to provide a company with sustainable competitive advantage or business edge, such knowledge must be independent from any given individual. For this reason therefore, we can identify and then manage organisational knowledge only to the extent an organisation’s systems, processes, products, rules and culture have captured it. Integral to the implementation of knowledge management is the understanding of enterprise’s information flows and implementing organisational learning practices, which make key aspects of its knowledge base explicit. Knowledge management is about enhancing the use of organisational knowledge through sound practices of information management and organisational learning (Broadbent, 1998:24). The purpose of knowledge management is to deliver/add value to the business.

According to Harari (1994:57-60) knowledge management rests on two foundations: utilising and exploiting the enterprise’s information (which needs to be managed for this to occur); and secondly, the application of people’s competencies, skills, talents, thoughts, ideas, intuitions, commitments, motivations and imaginations.

Duffy (1997:27) also emphasises that only people apply knowledge so they are the key element in knowledge management. Not every individual is highly competent in acquiring and applying knowledge in a business context. Individuals who can do this are known as learning people. Learning people need to operate in an environment that enables them to be effective and innovative. Therefore the management style, culture and structure of an enterprise is also a key element. Enterprises that aspire to do this well are known as learning enterprises. Another element that should not be forgotten is information technology. In the hi-tech world of today, information technology plays a key role in knowledge management by assisting people to access, learn and share knowledge; assisting enterprises to acquire, store, distribute and destroy knowledge.
To appreciate knowledge management, we need to understand the importance of knowledge management within an enterprise.

2.2 IMPORTANCE OF KNOWLEDGE MANAGEMENT

The successes of businesses in the 21st century in an increasingly competitive market place depends critically on the quality of knowledge which those enterprises apply to their key business processes.

The challenge of deploying the knowledge assets of an enterprise in creating competitive advantage and ensuring a sustained business edge is important. Foundation Strategic Innovation (1998) and Macintosh (1998) highlight some of the reasons listed below as drivers for knowledge management:

- **Competition:** The market place is increasingly competitive and the rate of innovation is rising, therefore knowledge must evolve and be assimilated at an ever-faster rate.

- **Customer focus:** Enterprises are organising their businesses to be focused on creating customer value. Management structures as well as staff functions are being reduced. There is a need to replace informal knowledge management of the staff function with formal methods in customer aligned business processes.

- **The challenge of a mobile workforce:** There are trends for employees to retire earlier and for increasing mobility, which leads to loss of knowledge. The mobility of the workforce will increase to the point where many employees will regard their career as series of projects sponsored by a series of companies.

- **Equity in the workplace:** With the implementation of the Equity Bill in South Africa this implies that enterprises have to ensure equity in terms of gender, race and creed. This may lead to knowledge being lost due to giving some employees' severance packages and early retirement. Enterprises need to ensure that there is
knowledge transfer from employees leaving the enterprise to those remaining within the enterprise.

- **The global imperative:** Most corporations are becoming international in the sense that they have foreign customer and supplier relationships. More and more companies are becoming transnational – operating as truly global companies in the sense that no one region is predominant. Transnational operation requires strong organisational communications and knowledge retention capabilities, which depend on organisational and individual learning and a unifying culture.

Malhotra in an interview with Maeil Business Newspaper on the 19th of February 1998 said: “Knowledge management is necessary for companies because what worked yesterday may or may not work tomorrow... To remain aligned with the dynamically changing needs of the business environment, organisations need to continuously assess their internal theories of business for ongoing effectiveness. That is the only viable means for ensuring today’s ‘core competencies’ do not become ‘core rigidities’ of tomorrow.”

### 2.3 Conclusion

In this chapter knowledge management was defined and the importance of knowledge management in enterprises was discussed. The first subproblem of determining why knowledge management is essential was resolved. As one can easily deduce from the importance of knowledge management, managing knowledge in enterprises will lead to new opportunities and competitive advantage. One can predict some resistance in knowledge management in the South African society because we prefer television to books, intuition to research.

However, as free natural resources and cheap labour are becoming exhausted, the untapped source of commercial advantage is the knowledge of people in enterprises.
It is still early days for knowledge management and its principles and practices will still engender considerable disagreement. The good news is that almost anything that an enterprise does in managing knowledge will ensure sustainable business edge or competitive advantage.

Knowledge management requires a broad definition of knowledge, including information, communications, human resources, etc and the assertion that knowledge must be applied and ensure value to the business. The current growth of interest in knowledge management is drawing on wide range of existing literatures, from post-industrial theory, organisational learning and other fields. Clearly knowledge management in an organisational context does not mean managing everything that is known but it is concerned with creating and mobilising certain knowledge for competitive advantage and greater business efficiency.

In the next chapter the second subproblem, namely, how corporate culture is important in establishing a knowledge management programme in an enterprise will be discussed. Culture is the basic building block or foundation when introducing a new program in an enterprise.
CHAPTER 3

CORPORATE CULTURE AS A FOUNDATION FOR SUCCESSFUL KNOWLEDGE MANAGEMENT

As discussed in the previous chapter people are the key component to knowledge management. Hence the type of culture existing in the enterprise is very crucial to the success of knowledge management. Davenport and Prusak (1998:1) highlight that as enterprises interact with their environments, they absorb information, turn it into knowledge and take action based on it in combination with their experiences, values and internal rules. Each enterprise’s specific beliefs, values and norms create a unique culture with identifiable manifestations. This therefore emphasises the embedded importance of the corporate culture in the success of knowledge management within an enterprise. Enterprises that are serious about knowledge foster an environment and culture that support continuous learning.

This chapter will address the second subproblem, which is about assessing why corporate culture is important in establishing a knowledge management program in an enterprise.

3.1 WHY IS CORPORATE CULTURE OVERLOOKED?

Sherriton and Stern (1997:25) put the following as reasons why managers overlook corporate culture:

- Managers tend not to think about culture, whether personal or corporate because culture is deeply rooted. The patterns of values, behaviours and beliefs are so internalised such that their actions become automatic and unconscious.

- The components of culture are hard to grab or are intangible. If employees are asked to describe their corporate culture, they will give diverse responses because people select different dimensions that are important to them.

- People notice culture acutely only when faced by changes from or differences in what they are used to. In fact, people expect others to have culture similar to their own. For example, if one worked in one enterprise for any length of
time and then move to another enterprise, or if an enterprise undergoes a merger, employee sensitivities become heightened about the distinctions. What was taken for granted becomes acutely noticed.

- Considering the anthropological roots, most people consider corporate culture as a given and unchangeable. The result of this is that corporate culture remains overlooked.

The implementation of a knowledge management process within an enterprise is an example where culture is usually not being addressed. Although implementation of a new process/initiative into an enterprise may heighten the awareness of the existing culture, it does not often stimulate action in addressing the culture (Sherriton & Stern, 1997:26). Corporate culture therefore becomes the missing link in successful initiative efforts within a business.

### 3.2 DEFINING CORPORATE CULTURE

The introduction of culture into business literature came with the realisation that there existed differences in competitive effectiveness of culturally different enterprises although there were only differences in the structural characteristics of the enterprises involved (Pascale and Athos, 1981). Corporate culture has been a focus area of research since the late eighties, especially linking it to enterprise performance. There are various definitions for the concept “Corporate Culture”, some being vague and others more precise.

According to Rao and Swaminathan (1995:3), Kroeber and Kluckhohn outline that from an anthropological viewpoint, culture refers to the values and beliefs shared by members in a society and includes patterns of behaving, feeling and reacting, and the premises underlying behaviour and ways of. In other words culture consists of man made aspects of an environment.
According to Donnelly, et al (1992:518) organisational culture refers to the impact on the environment resulting from group norms, values, philosophy, and informal activities. What this definition implies is that corporate culture is similar to culture in society as it has norms, values, beliefs and patterns of behaviour. The definition also highlights that the values and norms create a culture. One can thus say that culture is to society or enterprise what personality is to the individual.

Corporate culture is the pattern of shared and stable beliefs and values that are developed within a company across time (Gordon & Ditomaso 1992:784). Gordon and Ditomaso's definition brings the time factor into the picture, what they are saying is that culture is developed over a period of time. In other words, the longer the enterprise is in existence, the more developed its culture will be. One can also conclude that the more developed the corporate culture is, the more difficult it will be to change or influence.

Van der Erve (1994:9) reviewed many definitions of corporate culture and summarised it as follows: "Culture is the shared values and behaviour that knit a community together. It is the rules of the game: the unseen meaning between the lines in the rulebook that assures unity". As mentioned by Cartwright and Cooper (1993:60) culture can be seen as 'social glue', which serves to bind individuals and creates enterprise cohesiveness and coherence among the parts. It maintains order and regularity in the lives of its members, and only assumes importance in their minds when it is threatened or disturbed.

According to Kotter and Heskett (1992:4) they have found it helpful to think of organisational culture as having two levels, which differ in terms of visibility and their resistance to change (see Figure 3.1). At the deeper and less visible level, culture refers to the values that are shared by the people in a group and that tend to persist over time even when group membership changes. At this level culture can be extremely difficult to change, partly because group members are often unaware of many of the values that bind them together.
At the more visible level, culture represents the behaviour patterns or style of an enterprise that new employees are automatically encouraged to follow by their fellow employees. Culture, at this level is still tough to change, but not nearly as difficult as at the level of basic values. Each level of culture has a natural tendency to influence the other.

**Figure 3.1: Culture in an enterprise** (adapted from Kotter & Heskett, 1992:5)

Basically most authors agree that enterprise culture has to do with shared values in a group and Donnelly, et al (1992: 519) points out that a certain culture in an enterprise is prompted by its reaction to the external environment. Van der Erve (1994:12) points out that culture is also a dynamic system and can be divided into two subsystems: the driving sphere and the consolidating sphere. The driving sphere may cause a new wave of interactions, which eventually affects all elements in the cultural system, and vision is its triggering element. The consolidating sphere however, focuses on the reproduction or achievement - when success is achieved, rules are selected which perpetuate success by the attitudes and actions they bring.
Having defined what corporate culture is, it is appropriate to outline the different types of corporate cultures that various authors have observed.

3.3 CULTURE SHAPING FACTORS

Although each enterprise's special blend of elements develop a unique culture; a comparison of many enterprises identifies seven culture-shaping factors (Plunkett and Attner, 1994:265):

- Key business processes
- Employees and other tangible assets
- Formal arrangements
- The dominant coalition
- The social system
- Technology
- The external environment

Each of these factors is in itself a complex concept and none is independent of the others. Their dynamic interaction shapes the corporate culture.

**Key Business Processes:** At the core and fundamental to every enterprise are the processes employees follow to gather information, make decisions, communicate, produce a product or service, and manage work flow. The enterprise is defined by how leaders communicate to employees, how they share decision making, and how they structure the flow of work. The business processes affect and are affected by the other six factors that influence corporate culture.

**Employees and Other Tangible Assets:** An enterprise's resources, like employee population, plant and offices, equipment, tools, land, inventory and money, are used by the enterprise to carry out its activities. These are the most
visible and complex of the factors that influence culture because their quality and quantity determine much of enterprise's culture and performance.

**Formal Arrangements:** The formal arrangements that organise tasks and individuals constitute another factor that affects corporate culture. These arrangements include the structure of the enterprise and its procedures, rules and specific mandated behaviours.

**The Dominant Coalition:** An enterprise's culture is intensely impacted by the goals, objectives, strategies, personal characteristics, and interrelationships of its leaders, who form the dominant coalition. The leadership style of the enterprise leaders determines how employees are treated and how they feel about themselves and their work.

**The Social System:** The social system contributes norms and values to the corporate culture. Components like employee relationships, the grapevine and the informal organisation are also parts of the social system. Because people are the enterprise, their relationships define the enterprise's character.

**Technology:** The principal technological processes and equipment that employees use also affect corporate culture. For example, the use to which technology is put plays a role. The question to be asked regarding technology is: 'is a machine or process intended to replace human labour or enable employees to enhance their skills and productivity?' The answer to this question sends a message about the value of employees in the enterprise.

**The External Environment:** An enterprise’s external environment includes forces outside its boundaries that interact directly and indirectly with it (Bittel, 1989:31-33). These forces might be suppliers, markets, competitors, regulators, organised labour, and other elements outside an enterprise. These forces affect the goals, resources and processes of an enterprise. Clearly these elements shape the enterprise's culture in many ways. For example government regulation can have a
profound effect on corporate culture as it normally protects the enterprise from competition.

3.4 TYPES OF CORPORATE CULTURE

An enterprise's culture is nurtured and becomes apparent to its members in various ways. Some aspects of culture are explicit; some are inferred. Rue and Byars (1992:439) also highlights that culture has two basic components:

- **Substance** – the meanings contained in its values, norms and beliefs;
- **Form** – the practice whereby these meanings are expressed, affirmed and communicated to members.

Enterprises express their culture through statements of principle, stories, slogans, heroes, ceremonies, symbols, climate and the physical environment.

No matter what kind of culture exists within an enterprise it is a shared reality within employees. When one enters an enterprise, one crosses the cultural barriers within an enterprise and becomes acculturated. Every enterprise has its own unique culture or value set. Most enterprises do not consciously try to create a particular culture. The corporate culture is created unconsciously, based on the values of the top management or founders of an enterprise.

There have been some recent models created to attempt to study and classify cultural diversity. One such model is the Hofstede Cultural Orientation Model and it classifies cultures based on where they fall on five continuums (Auxillium West, 1999). The continuums are:

- **Individual vs. Collective Orientation**: The level at which behaviour is appropriately regulated.
- **Power-Distance Orientation**: The extent to which less powerful parties accept the existing distribution of power and the degree to which adherence to formal channels is maintained.
• **Uncertainty-Avoidance Orientation**: The degree to which employees are threatened by ambiguity, and the relative importance to employees of rules, long-term employment and steady progression through well defined career ladders.

• **Dominant-Values Orientation**: The nature of the dominant values, for example, assertiveness, monetary focus, well-defined gender roles, formal structure vs. concern for others, focus on quality of relationships and job satisfaction, and flexibility.

• **Short-term vs. Long-term Orientation**: The time frame used: short-term (involving more inclination toward consumption, saving face by keeping up) vs. long-term (involving preserving status-based relationships, thrift, deferred gratification).

One has to realise that corporate cultures are not one size fits all; the effectiveness of a given culture depends on the enterprise’s business goals. According to Goffee (1998:14) there is no right culture. He emphasises that culture is appropriate only in terms of what you are trying to do in the business. One must think carefully about the kind of culture that is wanted or needed. The process of finding the culture that best fits a business is long and difficult, and often that culture can be developed through trial and error (Duffy, 1999:6)

Handy (1985:188-196) points to four types of organisational, the main characteristics of each type are given in Table 3.1 below.
<table>
<thead>
<tr>
<th>CULTURE TYPE</th>
<th>CHARACTERISTICS</th>
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| The Power Culture | • Depends of centralised power source  
|                  | • Emphasis on individual rather than team decision making  
|                  | • Has few rules and procedures – little bureaucracy  
|                  | • Essentially autocratic and suppressive of challenge  
|                  | • Move quickly to threat, danger and opportunity  
|                  | • For effectiveness depend on telepathy  
|                  | • Knowledge management is seen as someone else’s problem  |
| The Role Culture | • Bureaucratic - its strength lies in defined functions and specialism  
|                  | • Emphasis on formal procedures, written rules and regulations  
|                  | • Job descriptions more important than the people who do it – the job description is evaluated not the person  
|                  | • Role requirements and boundaries of authority clearly defined  
|                  | • Will fix and departmentalise knowledge management operations  |
| The Task Culture | • Job or project oriented  
|                  | • Emphasis on team commitment and an enthusiastic belief in the organisation mission  
|                  | • Influence is based more on expertise than on position  
|                  | • Flexibility and high levels of worker autonomy  
|                  | • Knowledge management in this culture is important  |
| The Person Culture | • The individual is the central point  
|                  | • Emphasis on egalitarianism (equality)  
|                  | • Exists and functions solely to nurture the personal growth and development of its individual members  
|                  | • More often found in small organisations such as lawyers partnerships, etc.  
|                  | • Knowledge management crucial for survival of business  |
3.5 CULTURE CREATION AND DETERMINATION

The efforts of business leaders and employees create culture. Some efforts are intentional where a business leader will deliberately set out to instil certain values. In other cases, culture simply emerges from a pattern of behaviours that are not consciously planned.

3.5.1 The Role of Leadership

Leadership at all levels in an enterprise helps develop the culture. For instance, supervisors manage the resources, set the tone, and control the means to influence the business results. According to Plunkett and Attner (1994:271) leadership helps create culture by:

- Identifying underlying values
- Clearly defining the enterprise's mission and goals
- Determining the amount of individual autonomy and the degree to which people work separately or in groups
- Structuring work to achieve goals in accordance with the business values
- Developing reward systems that reinforce values and goals
- Creating methods of socialisation that will bring new workers inside the culture and reinforce the culture for existing employees.

Leadership within an enterprise needs to actively develop and nurture ways of passing the culture along in order to be certain that employees will adopt it. Robbins (1991:72) mentions that corporate culture significantly affects business leaders and indeed, all employees by determining to a large degree how business leaders perceive events and how they will respond. For example, in a culture that values customer service, most problems will be defined in terms of how they affect the customers. More important, perhaps, problems that have nothing to do...
with customer service will be overlooked because they involve issues that are not valued and will simply go unnoticed.

3.5.2 The Role of Employees

Employees contribute to corporate culture to the extent that they accept and adopt the culture. The training employees receive after being hired clearly assists in how well they get socialised. Employees also contribute to the culture by helping to shape the values the enterprise embodies. For instance employees who avoid the tasks at hand and influence newcomers to do the same, have a significant effect on quality, regardless of what leaders may say about quality as a value. On the other hand, employees who assist each other to meet a deadline create a feeling of teamwork that exists regardless of the leader’s decisions about structuring work.

Lastly, employees play a role in influencing corporate culture by forming subcultures. Subcultures are units within an enterprise that are based on the shared values, norms, and beliefs of their members (Plunkett and Attner, 1994:272). The values of the subculture may or may not complement those of the dominant corporate culture. Because subcultures influence their members’ behaviour, they are important factors for business leaders to consider. If a subculture’s values and norms conflict with those of the dominant culture, business leaders must take action.

3.5.3 Determining corporate culture

Byars (1992:10) mentions that the overall picture of the corporate culture is formed by appraising an enterprise on each of the following seven characteristics:

- **Individual autonomy**: the degree of responsibility, independence and opportunities for exercising initiative that individuals in an enterprise have.
• **Structure**: extent of regulatory measures and supervision used to control and direct employees.

• **Support**: degree of support, consideration and warmth experienced by the employees.

• **Identification**: degree to which employees identify themselves with the organisation as a whole, rather than with their particular work group or field of professional expertise.

• **Performance and reward**: degree to which rewards are directly linked to performance.

• **Conflict tolerance**: degree of conflict tolerance and willingness to be open and honest about differences.

• **Risk tolerance**: degree to which employees are encouraged to be aggressive, innovative and risk seeking.

Harris (1995:123) mentions that it helps to measure an enterprise’s culture in seven areas: overall effectiveness, organisational communication, evaluation of top management, assessment of the individual’s work team, self perception, organisational relations, and organisational change.

In developing and reinforcing their cultures, many enterprises have emphasised one or more of the seven characteristics as given by Byars (1992).

The next section will discuss the importance of corporate culture when establishing a knowledge management program.

### 3.6 HAVING A SUPPORTIVE CULTURE FOR KNOWLEDGE MANAGEMENT

Culture, which is mainly, shaped by people is a basic building block to knowledge management and is a powerful force. It must be considered when introducing a new program, because it affects how the enterprise accepts and fosters that
program. The ultimate success of knowledge management is contingent upon the culture being supportive. If knowledge management is to be an integrated aspect of how work gets done in an enterprise, it must become an integrated aspect of the culture.

Usually new programs are overlaid onto the culture, that is, typically introduced and added onto the existing culture, instead of being integrated into it. In other words, the culture is neither examined nor altered as to its fit. The beliefs, values, systems, policies, and management styles in place within the culture will work against the knowledge management overlay.

If the culture does not support knowledge management, obstacles continue to appear and eventually derail its success. Employees within the enterprise may continue to attend knowledge management and sharing workshops, only to return to a non-supportive culture. Because of the lack of results, the enterprise rationalises that “knowledge management does not work.” In the past this lack of attention to the culture or to a strategy for creating a supportive culture worked. This was because enterprises had very little competition and emphasis was more on profit making and increased production. There was no real need to create an ongoing supportive infrastructure and culture for business success.

Today, however, enterprises have realised the need to manage their knowledge and information as a critical way of accomplishing sustained business edge. Enterprises are restructuring and continually implementing programs that will ensure business success. However the mistake they do, is that the changes are just being overlaid onto the culture. Introducing formalised knowledge management within an enterprise like any other adjustment requires a culture that supports and nurtures the program.

If enterprises are to be successful in managing their knowledge, there needs to be consistency in support and a reduction of obstacles. This does not however imply that the knowledge culture will be the same in all enterprises embarking on
knowledge management. There should however be an assessment of the existing culture and a need for an enlightened and conscious decision to make the necessary changes to the culture for the knowledge management program to succeed.

This cannot be better emphasised as the way Saint-Onge (1996:13) puts it: "In the beginning, an organisation's culture acts a powerful filter on its perceptions of the business environment and, thus, contributes to the shape of the business strategies that are adopted. Later, when specific strategies are in place, they cannot be successfully implemented if the culture does not shape the organisation's behaviour in ways that are congruent to these strategies."

3.7 CONCLUSION

In this chapter the second subproblem has been addressed with the view to assessing its importance to establishing a knowledge management program in an enterprise.

Effective knowledge management requires creating a supportive, collaborative culture and eliminating traditional rivalries. This may mean painfully "unlearning" long entrenched lessons for some employees. According to Amidon and Skyrme (1997:274), "the difficulty typically faced is that of changing the knowledge is power syndrome."

Although very little has been written on knowledge and culture, the point is clear with regard to revitalising enterprises through knowledge management. An enterprise cannot succeed in the attempt to formalise knowledge management unless it attaches the critical missing link, corporate culture, to the change effort. Therefore, enterprise leaders should not ignore corporate culture. Rather, it should be addressed in the enterprise's mission, vision, and goal statements as well as emphasised in enterprise-sponsored training and enterprise communication in order to ensure successful implementation of knowledge management.
In the next chapter the implementation of a knowledge management program that will ensure a sustained business edge will be discussed.
CHAPTER 4
IMPLEMENTING KNOWLEDGE MANAGEMENT AS A SOURCE FOR A SUSTAINABLE COMPETITIVE ADVANTAGE

The previous two chapters discussed what knowledge management is and corporate culture as a foundation for successful knowledge management. Before implementing any knowledge management program in an enterprise one needs to know how will it be a source for sustainable competitive advantage. In today’s competitive business environment every activity introduced in an enterprise whether the business is regulated or not regulated comes under scrutiny to make sure it pays its way for the business. Competition is at the centre of business success or failure and it depends on competitive advantage, that is, delivering the service or product at a lower cost or giving rare benefits to the customer that will justify the premium price.

This chapter will address the third subproblem of establishing how knowledge management can be a source for sustained competitive advantage and also look at the steps to be considered when implementing knowledge management within an enterprise. Knowing what steps to take in implementing a knowledge management program will assist with the development of the framework of knowledge management. The economics underlying the role of knowledge management in an enterprise’s business edge as well as what having a competitive advantage means will be examined. The Resource-Based View of the Enterprise (Barney, 1991 and Wernerfelt, 1984) will be discussed and the value, rareness, imitability and organisation (VRIO) framework for analysing sources of competitive advantage will be examined.

This analysis will provide the knowledge management leaders with necessary tools to analyse how they can manage the knowledge management program as a source of sustainable business edge.
4.1 THE RESOURCE BASED VIEW OF COMPETITIVE ADVANTAGE

Managers and academics have both sought to understand the factors that determine the profitability of firms for many years. The resource-based view of enterprises provides an economical foundation for examining the role of knowledge management in the enterprise’s competitive advantage. This view focuses on the enterprise’s resources that can be sources of competitive advantage or business edge. Barney (1991:101) gives three basic types of resources as resources that can provide this competitive advantage:

- Physical capital resources include such things as the enterprise’s equipment, plant, and finances.
- Organisational capital resources consist of such things as the enterprise’s structure, management activities (i.e. planning, controlling, & co-ordinating), and human resource systems.
- Human capital resources include such things as the skills, judgement, and intelligence of the enterprise’s employees.

Knowledge is a human capital resource because for employees to be skilled, have good judgement and possess intelligence they need to be knowledgeable. Intelligence is situated at the top of a hierarchy of types of content of the human mind. Descending from intelligence there are understanding, knowledge, information, and, at the bottom, data. In fact when looking at all capital resources, knowledge is a critical element of all the resources.

Because of the above explanation there should be recognition of the potential for knowledge as an asset to provide competitive advantage. The resource based view is used by many academic authors in understanding the role of intangible assets in enterprise, e.g. in the human resources field.
In this chapter the discussion focuses on the capabilities required for knowledge management to have sustainable competitive advantage. Innovation and learning are themes frequently encountered in writings on knowledge-based enterprises and competitive advantage. A number of authors like Porter (1985), Bowonder and Miyake (1992) have written about creating and sustaining competitive advantage. Arie de Geus, formerly a planner at Shell, describes "learning as the only sustainable advantage" (Skyrme & Amidon, 1997:6). Innovation has been the focus of a United Kingdom, Department of Trade and Industry programme as the key to industrial competitiveness. Ray Stata, CEO of Analog Devices, brings these key themes together in his landmark paper Organisational learning: the key to management innovation (1989:63-74):

"I see organisational learning as the principal process by which innovation occurs. In fact, I would argue that the rate at which individuals and organisations learn may become the only sustainable competitive advantage, especially in knowledge-intensive industries."

The knowledge-based business must therefore create ideas and move them into the marketplace quickly and profitably. This implies focusing on knowledge flow. It implies harnessing the intellect of its people. These capabilities are difficult to emulate, because they directly relate to the enterprise’s human capabilities and the way collective knowledge is managed.

While many believe that these capabilities can provide an enterprise with a source of competitive advantage, it is often difficult to specify which capabilities do so. The author considers knowledge practices to include all of the programs, policies, and practices that an enterprise use to manage their knowledge. With all this in mind, the author proposes that to identify the value of an enterprise’s knowledge as well as the proper role of knowledge management programs in managing the knowledge resources to achieve such an advantage, one needs to ask four questions. These
questions include questions of Value, Rareness, Imitability, and Organisation or what is referred to as the VRIO framework (Barney, 1995:50).

4.2 THE VRIO FRAMEWORK

4.2.1 The question of Value

Enterprises create value through either decreasing product/service costs or differentiating the product/service in a way that allows the enterprise to charge a premium price. Thus, the ultimate goal of any knowledge management leader is to create value through knowledge use. The first question that a knowledge management leader must address is “How can knowledge aid in either decreasing costs or increasing revenue?”

Most knowledge managers in companies fail to show how knowledge aids in decreasing costs in monetary terms and yet through improving knowledge flow and understanding where the knowledge within the enterprise resides, it is often possible to avoid the costs associated with searching or regenerating it, by using what already exists. This is typically achieved by identifying and mapping knowledge, and making it accessible. This has been described as creating and maintaining corporate memory and knowing what you know.

CEO of Hewlett-Packard, Lew Platt as quoted by Sykme and Amidon (1997:10) comments: “Successful companies in the 21st century will be those who do the best job of capturing, storing and leveraging what their employees know.”

Two key themes emerge in leveraging knowledge to enable corporate success: that of creating and applying new knowledge, and that of exploiting existing knowledge. The value of knowledge creation is one of the key themes expounded by Nonaka. His
research concludes that: “Successful companies are those that consistently create new knowledge, disseminate it widely throughout the organisation and quickly embody it in new technologies and products” (Skyrme and Amidon, 1997:11).

Enterprises have to be cautious in applying downsizing and affirmative action in an enterprise because there are several cases of downsizing where enterprises have realised that valuable expertise was lost and have recruited back former employees as consultants. In South Africa, enterprises could experience the same effect when implementing affirmative action. Usually bringing back former employees as consultants’ costs enterprises more. Therefore enterprises should ensure that tacit knowledge is made explicit through knowledge sharing, documenting knowledge/information and encouraging piggy backing.

On the question of value, it is important that the knowledge management practices impact both the costs and revenues of the enterprise and as long as this is not seen within the enterprise, the value of knowledge management will not be realised by the enterprise. Today’s focus on knowledge has illuminated the importance of viewing intangibles as assets that can be developed and used to create business value.

4.2.2 The question of Rareness

The value of an enterprise’s knowledge management is a necessary but not sufficient criterion for competitive advantage. If the same characteristic of knowledge management is found in many competing enterprises then that characteristic cannot be a source of competitive advantage for any one of them. Valuable but common characteristics of knowledge management provide only competitive parity, ensuring that the enterprise is not at a substantial competitive disadvantage because it does not possess that characteristic. Therefore the knowledge management leader must
examine how to develop and exploit rare characteristics of the enterprise's knowledge management program to gain competitive advantage.

For example, most enterprises view their knowledge management programs to be rigid and structural. Within the knowledge management program there are differences in style of co-ordination of knowledge resources and practices from enterprise to enterprise. If the assumption exists across the enterprise that the knowledge management program within the enterprise is the same as others outside the enterprise, brings more than just being an knowledge provider, then there would be tremendous potential to exploit the rare characteristics of knowledge management for competitive advantage.

Usually enterprises are very good at accumulating knowledge and data, but few enterprises ensure that the knowledge is put to good use. Enterprises have developed a culture of acquiring the knowledge base, i.e. employees, who equate knowledge with power, but it seldom goes beyond that. But for enterprises seeking a shot in the arm for productivity plus global competitiveness, the knowledge management team needs to understand what is the rare thing they could do within the enterprise with regards to knowledge management to be a major source of competitive advantage to the enterprise. For example, Monsanto is the 4th largest chemical company in the United States, with sales currently exceeding $9 billion a year (Skyrme and Amidon, 1997: 308). Understanding the role of knowledge in its processes and how it can add value to their products and their customer's products is therefore important focus on their future. What role has the knowledge management program played in the success of Monsanto? The knowledge management team of Monsanto is composed of people from both information technology and library side of the business. The team is dispersed around the enterprise, working in partnership with Monsanto's different business units, helping diffuse the knowledge about knowledge processes throughout the business. The knowledge management team created Monsanto's "Yellow Pages"
as one of their visible efforts and maintain it on an ongoing basis and now acts as focal point for all knowledge enquiries.

If the knowledge management program within an enterprise wants to contribute in placing the enterprise at a competitive advantage, it should provide rare knowledge that will place the enterprise strategically in the market. Again if one provides knowledge, services and resources that are comparable to other knowledge management programs, it puts the enterprise at the same level as other enterprises and does not provide competitive advantage.

4.2.3 The question of Imitability

Valuable and rare characteristics of the knowledge management program in an enterprise can enhance the enterprise’s profits in the short term; however, if other enterprises can imitate these characteristics, then over time the characteristics will provide no more than competitive parity. The knowledge management leaders must attempt to develop and nurture characteristics of the knowledge management resources that cannot be imitated by competitors. This implies focusing on having a good and unique knowledge infrastructure, which will support the business goals and may be focusing on the importance of socially complex phenomena such as an enterprise’s unique history or culture in providing competitive advantage.

Every enterprise has a unique business goal and history that defines the present situation. This often provides a foundation for a competitive advantage, which other enterprises would find impossible to imitate. For example, Barney (1995:54) mentions that in one conversation he had with a high-level executive from DuPont’s competitors, this executive complained that no matter what his enterprise did (including purchasing DuPont’s safety training programs), they are simply unable to match DuPont’s safety record. When asked why, his response was simply, “When a
firm starts out by making dynamite, something happens that just instils in employees’ minds the importance of safety.” Hence DuPont’s superior safety performance stems at least in part from its unique history that competitors would find impossible to imitate.

The knowledge management program within an enterprise should also ensure that what it provides is not easily imitated by having a unique knowledge network (architecture) which is based on the enterprise’s objectives and supports the existing/desired culture of the enterprise and is lurched on the enterprise’s history.

4.2.4 The question of Organisation

Finally, in order for any characteristic of an enterprise’s knowledge management program to provide a source of sustained competitive advantage, the enterprise must be organised to exploit the resource. Organisation requires having in place the systems and practices that allow knowledge management characteristics to bear the fruit of their potential advantages. The question of organisation focuses attention on systems, as opposed to a single knowledge management practice.

Many enterprises have initiatives and practices in place that can broadly be construed as contributing to the knowledge agenda. Such projects include implementing an Intranet, sharing knowledge on best practices and using personal development plans. Few enterprises however are applying knowledge management broadly throughout their enterprise. To do this requires taking a systematic and holistic view of the knowledge agenda, i.e. understanding the strategic role of knowledge, linking it to key management decisions and business processes, and improving processes for knowledge creation, sharing and use. Knowledge activities are closely allied, and can evolve from established activities or other initiatives such as Business Process Re-
Knowledge experts and the major consultancies are having a significant influence in creating management awareness. However, major users have mixed feelings about the type of contribution that they seek from them. Most appreciate the consultancy's own experience, their frameworks, models and knowledge programmes where they can meet their peers. But knowledge is so fundamental to each business that many enterprises want to develop their own approaches and methods tailored to their context. A variety of tools and techniques are in use, but specific methods and tools for managing knowledge are not yet well developed. There are several architectures, all of which link technology, organisational and business factors, with varying emphasis on other factors such as leadership and measurement.

Skyrme and Amidon's research (1997:466) found that the state of practice was focused on two main areas: the sharing of existing knowledge throughout an enterprise and the creation of new knowledge. Clearly the knowledge management program, through either directly controlling or strongly influencing the characteristics of knowledge management in the enterprise, plays an important role in developing and maintaining an enterprise's competitive advantage. Simply making the case that knowledge management can influence an enterprise's performance, is only part of the story. In order for knowledge management to truly develop and maintain sources of competitive advantage, knowledge management leaders need to focus attention and activities toward those aspects of the enterprise's knowledge resources that will provide such advantage.

The next section will discuss steps to follow in establishing a knowledge management program in an enterprise.
4.3 STEPS FOR ESTABLISHING A KNOWLEDGE MANAGEMENT PROGRAM

In establishing a knowledge management program, it is crucial to understand what its value will be to the enterprise, determine what will make the program rare, ensure that it is not imitable and that the enterprise has well established systems to support knowledge management. Establishing the knowledge management program involves the following five steps:

- Analysis of the enterprises' orientation to knowledge management.
- Assessment of the external environment.
- Decide and formulate suitable strategies for knowledge management.
- Develop a plan for establishing knowledge management.
- Implement and evaluate program.

4.3.1 Enterprise analysis

The first step in establishing a knowledge management program will be to assess the enterprises’ orientation to knowledge management. In analysing the enterprise the following questions need to be addressed:

- What do leadership and employees understand knowledge management to be?
- Are the leaders as well as employees committed to knowledge management?
- Is the corporate culture conducive to knowledge management?
- What technology exists in the enterprise to support knowledge management?
- What would be the barriers to implementing a knowledge management program?
- What are our strengths, weaknesses, opportunities and weaknesses on knowledge management?
The author could not get an assessment instrument for enterprise analysis on knowledge management except a "Knowledge Management Framework Assessment Exercise" by KPMG, which enterprises can use to see how well advanced they are in knowledge management. KPMG's exercise assumes that the enterprise is already having a knowledge management program in place (http://kmsurvey.londonweb.net/).

4.3.2 External analysis

External analysis involves the assessment of the external elements of the enterprise. The analysis should address the identification of threats, opportunities, strategic questions and strategic choices. This analysis should attempt to identify and understand emerging opportunities and threats created by external forces.

External analysis is crucial from a knowledge management strategy point of view, as the knowledge management strategy must take into consideration the competitors' actions, strengths and weaknesses in a case where one has competitors. In order to ensure that the knowledge management program of an enterprise has sustainable competitive advantage one must exploit the competitors' weaknesses and bypass or neutralise the competitors' strengths.

Only after analysing the enterprises' orientation to knowledge management and understanding the external environment will one be in a position to formulate specific strategies for knowledge management in an enterprise.

4.3.3 Decide and formulate a suitable knowledge management strategy

Before formulating any strategy, it is important to establish the importance of knowledge management in the overall objective of the enterprise. One should
establish how strongly knowledge management features in the enterprises’ mission statement and business plan. A strong emphasis on knowledge management in the enterprises’ business plan would indicate the importance of well developed strategies for establishing a knowledge management program in order to achieve the enterprises’ overall objective.

Depending on the outcome of the analysis of the enterprises’ current position with regard to knowledge management orientation, strategies should be formulated to address the enterprises’ opportunities and threats. Knowledge management strategies result from the knowledge workers’ awareness of and responses to trends in the marketplace.

The formulation of knowledge management strategies depends on the ability of leadership to change corporate culture. Enterprises need to have a culture that creates opportunities for tacit knowledge to be made explicit.

It should be noted that the strategies for establishing a knowledge management program would differ from enterprise to enterprise. The following questions can be asked in formulating the strategy:

- What is enterprises’ vision and mission?
- Which strategies will contribute to the accomplishment of the mission?
- How can knowledge management contribute to the achievement of the strategic goals?
- Is knowledge on the same level as other enterprises’ assets, such as capital and labour, etc?
4.3.4 Developing a plan for establishing a knowledge management program

If an enterprise wants to be successful in its pursuit of the strategies, there should be a comprehensive plan to establish how the enterprise would approach establishment of a knowledge management program.

This plan should focus on successfully leveraging the cultural components to execute and sustain knowledge management. The action plan should include time frames, people involved and resources required. To implement effectively one needs to adhere to all outlined facets of the action plan. Failure to stick to the plan could send strong messages to the enterprise that leadership is not serious about knowledge management and the commitment needed to sustain knowledge management will be lost.

4.3.5 Implement and evaluate knowledge management strategies

In implementing the knowledge management strategies one must prioritise activities and ensure integration with other business processes. Managers and academics alike agree that the effective implementation of strategy is about defining what needs to be achieved and about motivating capable people to want to achieve it (Campbell and Luchs, 1997:146).

An evaluation of the knowledge management strategies compares performance with objectives and measures the overall efficiency and effectiveness of the enterprises' attempts to attain its stated aims and objectives. After all the information has been obtained regarding the success of the knowledge management program, the necessary modifications should be made to the strategy.
The next section discusses the implications knowledge management has in ensuring sustained competitive advantage.

4.4 IMPLICATIONS FOR COMPETITIVE ADVANTAGE

The VRIO framework as discussed in Section 4.2 outlines the implications for the factors to be considered in ensuring sustainable competitive advantage. The following are seen as implications for ensuring competitive advantage when implementing a knowledge management program.

4.4.1 Sustainable competitive advantage stems from enterprise specific more than general knowledge management

Knowledge management practices can either be specific to a particular enterprise or general. General knowledge management practices imply using the basic and general principles of knowledge management in an enterprise, these practices would be common to all enterprises and are transferable across a variety of enterprises. For example, all knowledge management programs in enterprises are able to identify, create, collect, store and allow access to knowledge based on basic knowledge management theory. Enterprise specific knowledge management on the other hand, provides value only to a particular enterprise and is of no value to competing enterprises. For example, knowledge architecture designed for a particular enterprise based on its objective provides value to that enterprise but usually would not be valuable to other enterprises.

Because general knowledge management practices provide equal value to all enterprises, one would expect that, given even moderately efficient knowledge management systems, these would not be a source of competitive advantage for any one enterprise; thus, to seek to gain competitive advantage through basic and general
knowledge management practices would be futile. On the other hand, basic and general practices of knowledge management are necessary for maintaining competitive parity.

Greater potential for sustainable competitive advantage stems from investing in enterprise specific knowledge management initiatives. This could be achieved by focusing on developing enterprise specific knowledge management skills that cannot be easily duplicated by competitors. In fact, central to the concept of organisational learning is the process of developing and disseminating tacit knowledge throughout the enterprise (Miller, 1996: 488). These skills would provide competitive advantage and support development of enterprise specific knowledge management initiatives because they will provide value to the enterprise due to their good understanding of the business.

The importance of enterprise specific knowledge management highlights the potential short-sightedness of outsourcing most or all knowledge management activities. Outsourced activities most effectively provide basic and general knowledge management (Barney & Wright, 1998: 38). While some consultancies may be able to develop tailor-made programs for specific enterprises, these might not be feasible when proprietary technologies and process exist. In addition, the knowledge management consultancy, which developed the program consequently, acquires the skills and can theoretically exploit them with competing enterprises. For these reasons, while some knowledge management activities can be outsourced, outsourcing of knowledge management activities is not likely to serve as the lever for gaining sustainable competitive advantage through knowledge management.
4.4.2 Sustainable competitive advantage comes from teams more than individuals

Much of the popular literature on knowledge management and management seem to point to individual Chief Knowledge Officers (CKOs) as sources of competitive advantage. The tendency is for academic works to focus on leadership and ignore the lower level employees. The inherent assumption given by these works is that knowledge management skills are common across enterprises but that highly skilled individual leaders or leadership teams are more rare. This implies that the enterprise that has the right CKO might possess a source of sustained competitive advantage. While these individuals are quite valuable, if labour markets are quite efficient, they are not likely a source of sustained competitive advantage.

Individuals who possess valuable and rare skills are usually able to claim most of the rents that are attributable to those skills (Wright, et al, 1994:311). Hence, an outstanding CKO, because of the high visibility of his/her performance, will soon be approached by other enterprises with higher compensation. In the bidding process for that individual’s services s/he can claim most of the rents, and, therefore, the rents will not accrue to whichever enterprise ultimately obtains that individual’s services.

Teams or larger groups, on the other hand, due to causal ambiguity and social complexity, provide greater potential to be a source of sustainable competitive advantage. The exploitation of the synergistic value from a large number of individuals who work together is quite costly if not impossible for competitors to imitate.

As mentioned in the above paragraph that the best source of competitive advantage is a team, hence the knowledge management program execution should be done by a
team that will guide the enterprise in its management of knowledge at the strategic, tactical and operational levels. The author believes that this team must evolve as a precondition for success in the knowledge based enterprise. For example at Price Waterhouse there are dedicated teams of professionals at four knowledge centres around the world. Their main role is as “facilitators of knowledge sharing”. People are seconded into and out of these teams, so that skills of knowledge management percolate throughout the company (Skyrme and Amidon, 1997:89).

Alchian and Demsetz as quoted by Waterman (1994:57) defined team production as “production in which (1) several types of [human] resources are used and (2) the product is not a sum of the separable outputs of each co-operating resource”.

Because output is more than the sum of the separable outputs of each co-operating resource, it is difficult, if not impossible, to identify the specific source of competitive advantage. In other words, the competitive advantage stemming from teamwork is characterised as being causally ambiguous, thus making it difficult for competitors to imitate. An additional benefit to team work is that individuals become linked in transaction-specific relationships, resulting in transaction-specific intellect capital. In other words, team members become involved in socially complex relationships that are not transferable across enterprises, thus only benefiting the enterprise in which these relationships develop. This nontransferability requires the development of team orientation. Clearly trust and good relationships among the knowledge management team members is a necessity for knowledge management to be regarded as an enterprise specific asset that provides value and is quite rare and extremely difficult for competitors to imitate.

4.4.3 Sustainable competitive advantage stems from knowledge management systems than from single knowledge management practices

Most writings on information resource management and knowledge management like the one by Skyrme and Amidon (1997) focuses on practices and may see practices as
a source of competitive advantage. The assumption is that the enterprises that engage in the best knowledge management practices, have the best knowledge management systems and will have a competitive advantage over enterprises that fail to use this particular practice.

The challenge for knowledge management is to develop systems of knowledge management practices that create a synergistic effect rather than develop a set of independent best practices of knowledge management. This requires a changing mindset from the traditional subfunctional (creation, acquisition, analysis, storage and use) view of knowledge management to one where all of these independent subfunctions are viewed as interrelated components of a highly interdependent system. The interrelatedness of the system components makes the advantage difficult, if not impossible, for competitors to identify and copy. It also requires investing time and energy into developing systems and structures for integrating various knowledge management practices such that they complement, rather than conflict with one another. Enterprises that have developed highly integrated systems seem to have obtained a source of competitive advantage.

These implications of the VRIO framework run against the grain of much of current management thinking that emphasises the importance of finding the right CKO, outsourcing knowledge management functions, or seeking sustained competitive advantage through finding one best knowledge management practice. This does not imply that these activities are not valuable, but only that they are incomplete, particularly in guiding the decision making of knowledge management officers.

4.5 CONCLUSION

This chapter has addressed the third subproblem of establishing how knowledge management can be a source for competitive advantage. The steps to follow in
implementing a knowledge management program were discussed which partly address the fourth subproblem of developing a framework for establishing knowledge management within an enterprise. A more detailed discussion on the fourth subproblem will be done after the empirical survey.

One important implication of the VRIO framework is that the knowledge management function manages the set of knowledge resources that are most likely to be sources of competitive advantage into the next century. This implication should illustrate the increasing importance of knowledge management in influencing the enterprise’s performance in today’s competitive environment. In addition to highlighting the important steps in establishing the knowledge management program, it also provides guidance for the knowledge management executive on how to effectively gain and maintain sustained competitive advantage.

The VRIO framework assists the knowledge management executive to evaluate all of the activities of the function against the criteria of value, rareness, imitability, and organisation. Again, knowledge management activities that are valuable but not rare, or valuable and rare but imitable, are not to be ignored. These are the activities that the function must perform to maintain competitive parity or to provide temporary competitive advantages.

The ultimate quest should be for the knowledge management function to provide the enterprise with knowledge management activities that provide value, are rare, and cannot be easily imitated by other enterprises. This quest implies developing knowledge management strategies that support delivery of high quality products and services. It also requires that knowledge management functions focus more attention on developing coherent systems of knowledge management practices that support the enterprise aims. The VRIO framework enables business people in knowledge
management to transform the knowledge management function from being a drain on the enterprise's resources into a contributor to the enterprise's performance.

The next chapter discusses the empirical research and analyses in order to support or nullify the hypothesis reached through the literature surveys.


CHAPTER 5

EMPIRICAL SURVEY

In the preceding chapters the theoretical background explaining what knowledge management entails as well as how knowledge management can be a source for sustained competitive advantage were discussed.

In this study the researcher assumed that there was a need to investigate the establishment of a knowledge management program within the Eskom Transmission Group, and set out to determine whether knowledge management could be a source of sustained competitive advantage. The data and information were gathered, analysed and interpreted according to the qualitative research method to determine how to establish a knowledge management program that will ensure sustained competitive advantage. The research assumptions and expectations guided the entire investigation.

In this chapter the empirical survey at the Eskom Transmission Group is described.

5.1 RESEARCH METHODOLOGY

5.1.1 Qualitative research

In the social sciences there are two approaches to research, which can be broadly divided into the quantitative and qualitative approaches. The qualitative approach, is seen as less formalised with the scope less likely to be absolutely defined, and focusing on the texture and feeling of the social situation, with rich, full and holistic data (Miles, 1983:117).
Gorman and Clayton (1997:23) define qualitative research as a process of enquiry that draws data from the context in which events occur, in an attempt to describe these occurrences, as a means of determining the process in which events are embedded and the perspectives of those participating in the events, using induction to derive possible explanations based on observed phenomena. The key assumption made by qualitative research is that the meaning of events, occurrences and interactions can be understood only through the eyes of actual participants in a specific situation.

Hakim (1987:26) states that qualitative research offers richly descriptive reports of individuals’ perceptions, attitudes, beliefs, views and feelings. It also offers meaning and interpretations given to events and to the behaviour of the individual. Interacting with members of the enterprise, thereby understanding the meanings they attach to events more appropriately does analysis of the enterprise as this allows better grasping of essential elements of a phenomenon. Mouton and Marais (1988:155) also suggest that the same aim can be attained through different methods, and that both qualitative and quantitative researches have a place in the social sciences.

5.1.2 Application of the qualitative approach for this research

Interviewing is a structured process in which the researcher is able to ask questions about what cannot be seen or observed (Gorman and Clayton, 1997:52).

Interviewing in qualitative research offers two advantages. First, the individual being interviewed is encouraged, by the use of open-ended questions or by non-directive listening, to highlight self-perceived issues or relationships of importance. Secondly, dialogue between researcher and subject allows the interaction to move in new and perhaps unexpected
directions, thereby adding both depth and breadth to one's understanding of the issues involved.

The inputs from literature indicated that knowledge management is an old concept but recently getting attention in enterprises, thus leading to unfamiliarity for the leaders in enterprises. Due to the fact that knowledge management is not really formalised in most enterprises, in doing the first step of analysing the enterprise, the researcher approached the leadership of the enterprise with the assumption that they would be more knowledgeable. The leaders are interviewed individually, thus ensuring depth and breadth in interviews.

5.1.3 Research objectives

The literature study indicated that not only do the enterprises internationally practice knowledge management, but that they rely largely on knowledge management to have competitive advantage. The results of the literature research did provide theoretical input of the applicability of knowledge management in enterprises. From the literature study a few issues were identified which need to be verified for the South African environment and enterprises.

The specific objective of the qualitative research were:

- To establish whether knowledge management is understood and whether management is aware of the importance of managing knowledge within the business.
- To test the need for a knowledge management program in the Eskom Transmission Group.
To determine whether the Eskom Transmission Group is ensuring that critical knowledge is captured and passed on by experienced and knowledge exiting employees.

5.1.4 Sample for research

The researcher used the Eskom Transmission Group as a case study and selected a sample of individuals using nonprobability purposive sampling. The researcher interviewed ten people in the senior management level. In the section below the sampling method, the population sampled, the unit of analysis and the gathering of data will be discussed.

5.1.4.1 Methodology

Purposive sampling implies that respondents are chosen on the basis of the researcher's knowledge of the characteristics of the universe and the aim of the investigation. As Walker (1985:30) states: "Sample design in qualitative research is usually purposive; that is, rather than taking a random cross-section of the population to be studied, small numbers of people with specific characteristics, behaviour or experience are selected to facilitate broad comparisons between certain groups that the researcher thinks likely to be important."

Since the concept of knowledge management has recently been formalised, it was necessary to purposively handpick the senior people in the business with the assumption that they are information-rich individuals and they would have an understanding of knowledge management. For the purposes of this study, it was decided to interview a group of ten respondents. The method applied for gathering data was the personal interview, using a largely semi-structured interview schedule containing a number of questions.
5.1.4.2 The population sampled

The researcher selected ten senior managers within the business. The respondents were considered to have a holistic view of the enterprise and are aware of the value of knowledge on all levels in the business, particularly for the strategic advantage of the business. The respondents were selected from the various focus areas within the business. The 80:20 (Pareto) principle was applied, target few individuals that will be eighty percent familiar and understand the business, rather than try and involve everyone.

5.1.4.3 Unit of analysis

All respondents were employed by Eskom Transmission Group at the time of the interviews.

5.1.4.4 Procedure for gathering data

The respondents were sent electronic mail requesting them to grant an interview as well as informing them about the topic of research (see Appendix A). A number of the respondents that were initially chosen were eliminated due to time constraints and their unavailability during the period stipulated by the researcher. The researcher made appointments with the respondents that were willing and were available for the research. For the interview a semi-structured interview schedule was used containing knowledge management related aspects that the researcher wanted to obtain data about. The interviews were taped and lasted on average 30 minutes. All the interviews were transcribed verbatim to ensure that all communicated information was included.
Motivations to utilise the interview approach to obtain inputs from the respondents were:

- Interactions with respondents had to add value to the research of this study.
- The subject matter is a fairly new concept and indicated that knowledge level could be low.
- Although cost is generally higher especially in terms of time with interviews, the need to obtain quality inputs outweighed the cost of the interview. This was an effort to obtain well-informed opinions about the concept of knowledge management.
- Detailed probing of respondents is required.

Advantages of utilising interviews are various according to Martins and Loubser (1996:229). These are:

- They are ideal in situations where all possible answers to a given question are not known.
- They compel the respondents to think and to consider their answers.
- The researcher can usually deduct the reason for a particular response.

5.2 ESKOM TRANSMISSION GROUP

5.2.1 Background history on the Eskom Transmission Group.

Eskom is the largest South African electricity utility that generates and transmits electricity over the long distance to the load centres. The utility has 29 power stations with the nominal capacity of 39,154MW. Eskom is among the top five utilities in the world in terms of size and sales. It supplies 98% of the country’s electricity requirements, in addition to that it also transport power to the neighbouring countries like Botswana, Swaziland, Namibia, and Zimbabwe, etc.
Eskom is divided into three major business groups that are regulated by the Electricity Supply Industry, and that are Generation, Transmission and Distribution. Each group runs as a separate entity in terms of internal resource allocations. Eskom Transmission business is made of 26 000 kilometres of transmission lines that spans the entire country and connect to the neighbouring countries. The mesh or interconnected lines is known as the national grid. The responsibility of the Transmission business is to ensure the smooth transportation of power from generating stations to the customers like Iscor, Alusaf, etc. This involves maintenance of substations and transmission lines, refurbishment of old substation and expansion of the network.

The Electricity Supply Industry in which Eskom and Transmission Group are major players has entered a period of significant change brought about by the need to adapt to the rapidly changing environment in which the enterprise has to operate. The major forces of change for Eskom and the Transmission Group have been:

- Eskom's vision to be the world's lowest-cost provider of electricity.
- Commitment to the Reconstruction and Development Program.
- The democratisation process that has and is taking place in the country.
- The restructuring of the Electricity Distribution Industry.
- The establishment of the National Electricity regulator and the granting of a Transmission Licence to the business.
- Development and opportunities in the Southern African Region.
- Globalisation, an increasingly competitive environment and changing customer needs and expectations.

It is therefore important for the Transmission Group to be flexible enough to adapt to the changes taking place and to be actively involved in
influencing the environment for the betterment of customers and for the sustainability of the business.

The Eskom Transmission Group in 1995 embarked on a course of re-engineering the enterprise around the process way of working aimed at delivering a customer focused service. Up until recently the Eskom Transmission Group was made up of five businesses, which were the Power Network, Market Administration, Trading, Telecommunications and Grid Operator. The people in Transmission have been working in teams. The teams fell under one of these groupings:

**Governance teams** – responsible for the strategic direction and decision making in the business.

**Output teams** – deliver outputs to specific customers in the Customer Load Networks (CLN). A customer load network is a number of Transmission substations or bulk supply points that would feed either a particular customer or a number of customers with similar needs. Transmission has 148 substations and these have been grouped into 25 customer load networks (CLNs).

**Multiple CLN teams** – task or project teams that span the boundaries of more than one CLN.

**Resource Centre teams** – teams put together by the resource centre to perform resource centre tasks or functions.

**Support teams** – teams put together due to the required output of the team being highly professional or called into existence by either governance or output teams, to support the outputs of the CLN’s or to collate information required for determining the strategic direction of the business.

All human resources were grouped into a Resource Centre and outputs all performed in teams. The Resource Centre was a depository of skills comprising of 2500 people; total manpower budget of R360.5 million and
production equipment to the value of R31 million. Business and teams obtained skills from the resource centre, however, businesses and teams did not own the skills and resources they used. As a result people in the Transmission could be members of more than one team across more than one business. This created flexibility in the deployment of skills amongst various teams and businesses and also resulted in a lot of indiscipline.

In the Eskom Transmission business plan for 1997-2001 the outgoing Transmission Executive Director Piet Faling mentions that to ensure customer satisfaction and business sustainability the following things are essential:
- Transmission will continue to focus on running the business more efficiently and effectively whilst consistently improving the level of service delivered to customers.
- To continually drive down the real price of electricity to the customer, alternative energy sources and developments in the Southern African region will be explored and capitalised on where opportunities exist to bring more competition into the market place.

5.2.2 Changes in the Eskom Transmission Business

In February 1999 the Minister for Public Enterprises, Ms Stella Sigcau and Mr Reuel Khoza, Chairman of Eskom's Electricity Council, announced far-reaching changes to Eskom's business and management structures. They stated that these changes were designed to prepare Eskom to become an even more effective company in the 21st century. As Mr Khoza puts it: "These changes will ensure that Eskom will be better able to support government's African Renaissance initiatives, as well as achieve Eskom's vision of being the premier African utility with world wide aspirations."
The Minister pointed out that the organisation structure changes would clearly separate Eskom's regulated and non-regulated businesses, and sharpen the focus of each business in its respective market. The structure of the streamlined Eskom regulated business includes the Generation, Transmission, Distribution, Finance and Human Resources Groups.

This streamlining will ensure that the regulated business will focus only on providing affordable, available and reliable power supply for domestic customers and a low cost, high quality power supply for industrial and commercial customers. In conjunction with these changes, Mr Khoza announced senior management changes in Transmission amongst other Groups. Transmission was given a new Executive Director (ED), Mrs Dolly Mokgatle and two Senior General Managers, Mr Peter O'Connor and Mr Pat Naidoo.

After a number of workshops with the Transmission staff and studying the Transmission way of working, i.e., the culture, the Executive Director and Senior General Manager realised that changes had to be made to ensure the effectiveness and success of the business. Quoting from Dolly Mokgatle's (Transmission Executive Director) speech of the 23 April 1999 she mentions that “... the past three years have seen the development of the process way of doing things in Transmission. Much work has been done... . The time has arrived for us to re-examine this foundation, make any adjustments that might be necessary and then build a structure on it.” She emphasised that at the basis of the development the four themes of good business must be included and these are:

- Accountability
- Delegation of authority
- Discipline
- Visible leadership.
To ensure that the business achieves its primary objectives nine key business areas and one temporary area were formed and responsible people for each area were identified. The key business areas are:

**Finance and Business Services:** This area includes such functions as financial discipline, commercial, information technology, and the administration of business planning.

**Human Resources:** Covers the functions of the administration of human resources, strategic human resources, the co-ordination of training and development, the co-ordination of affirmative action, and the performance management system.

**Power Network Business:** This area is responsible for technical excellence, good maintenance and the field operation of the Transmission network. The power network business will be made of Customer Load Networks, which will be grouped into seven clusters.

**Grid Operator:** This area is responsible for the operation and optimisation of the national network.

**Engineering:** This area includes such functions as design, drafting, policy and assurance, the management of major projects, protection, metering and control.

**Expansion Planning:** This area concentrates on Transmission's long term strategic network planning.

**Telecoms:** This area is the Transmission telecommunication business.

**Africa Initiatives:** This area includes the trading, market administration and the various African initiatives.

**Risk Management:** This area is responsible for the co-ordination of the safety and insurance functions in Transmission.

**Change and Transformation:** This is a temporary functional position, to guide Transmission through this phase of development.
Despite all these changes the Executive Director in her workshops emphasised that Transmission employees need to keep the business values and that people are central to achieving the objectives of the business. The Transmission Group is now made up of about 2 300 employees.

The next part will look at the Transmission culture or way working.

5.2.3 The Eskom Transmission Group Culture

In a document created by the Transmission Strategic Steering Team in 1998 the organisational culture was described in terms of values that guide the business and the Transmission "way of working". The values could still be the same but the overall way of working might have changed due to the above-discussed changes in the business structure.

The values that guide Transmission's behaviour are highlighted as:

- **Customer Focus** – our business is to satisfy the needs of customers.
- **Respect** – we treat one another with mutual respect.
- **Honesty and Integrity** – uncompromising honesty and integrity guide our ethical behaviour.
- **Diversity** – we celebrate the richness of diversity and regard it as a business imperative.
- **Trust** – trusting in one another is the basis for productive working relationships.
- **People Growth and Development** – people growth and development are the foundation for long-term business success and are integral to our learning organisation.
- **Openness and Transparency** – a healthy working environment is promoted through open communication and transparent behaviour.
5.3 ANALYSIS AND INTERPRETATION OF DATA

The data obtained from the interviews will be analysed and interpreted according to the grounded theory. The use of qualitative data is problematic because of the lack of clearly formulated methods of analysis. In this study, as is the case with most qualitative investigations, a large amount of in-depth information was generated which makes it difficult to see underlying patterns in the data. The researcher considered the grounded theory as the most appropriate method for analysis. Turner (1981:227) highlights that “the grounded theory approach is likely to be of maximum use when it is dealing with qualitative data of the kind gathers from participant observation, from observation of face-to-face interaction, from semi-structured or unstructured interviews, from case-study material or from certain kinds of documentary sources.”

Part of the verbatim presentation of data is in Appendix C. The data obtained from the respondents was interpreted with regard to their opinions of the eight core categories as outlined in the letter sent to the respondents. The general problem with using qualitative data is that the methods of analysis are not well formulated.

5.3.1 Preparation of the data for analysis according to grounded theory

A problem that exists in qualitative research is that it is done using mainly words not numbers and words usually have multiple meanings, which make them harder to manipulate or move around. The narrative text of interview notes is very difficult to use during analysis as it spreads over many pages and
usually has little inherent structure. A common solution is to code the notes in order to prepare data for analysis.

To analyse data according to grounded theory, the data is coded or analysed according to a number of coding procedures which follow one another in degree of intensity, that is, open coding, axial coding and selective coding. In the analysis of the data of this study, the author used selective coding.

Selective coding is the highest level of coding and is the process of selecting the core categories, relating systematically to other categories, validating these relationships, and filling in categories that need further development and refinement, again by means of memoing (Strauss and Corbin, 1990:116). Selective coding is accomplished in five steps by means of several techniques. The steps are not linear and in practice they are indistinguishable. The five steps are: explicating the story line, relating subsidiary categories to the core category by means of the paradigm model, relating categories at the dimensional level, validating relationships against the data, and finally, filling in the categories. Thereafter categories are grouped, and the theory is presented either in narrative or diagrammatic form as a grounded theory (Strauss and Corbin, 1990:119-142).

5.3.2 Procedure for organising the data

In order to organise and categorise the data obtained through the interview schedules, the procedure was followed:
- all recorded interviews were transcribed verbatim;
- the completed transcriptions were carefully analysed according to selective coding (Strauss and Corbin, 1990:204-218). From this coding, categories were developed that reflect the responses of the respondents, and also cover the various themes present in the interview schedules;
- according to selective coding eight core categories were identified as follows:
  - concept understanding;
  - current practices;
  - effect of losses;
  - enablers;
  - supporting systems;
  - barriers;
  - critical knowledge;
  - competitive source.
- all the data was analysed by making use of memos, notes and diagrams.

In this chapter, the analysis in terms of the categories mentioned above is presented, and the responses of the respondents are interpreted with regard to the development of a practical framework for establishing a knowledge management program that will ensure sustained competitive advantage in an enterprise.

In Appendix C the respondents are quoted verbatim to ensure that richer information and the responses of the respondents are displayed. Pseudonyms are used to protect the identity of respondents.

5.4 ANALYSIS AND INTERPRETATION OF DATA
ACCORDING TO IDENTIFIED CORE CATEGORIES

In the following section the responses of the respondents are presented under eight categories identified during selective coding as listed in paragraph 5.3.2. The core categories are arranged according to the sequence of the questions in the interview schedules. Under each category the data are analysed and interpreted. The respondents are referred to as R1-R10 throughout the section.
5.4.1 Understanding of the knowledge management concept
(Covered by question one in the interview schedule)

Analysis:
The respondents had various interpretations of the knowledge management concept:

- Two respondents felt that knowledge management is about building knowledge capacity in people especially giving knowledge to new entrants in the business by creating a centre of expertise where knowledge is easily accessible and involves retaining previous knowledge and lessons learned.
- Two respondents perceived knowledge management to be involve capturing of information or data that is in people's heads by putting it on paper in order to have it some time in the future or leverage it in future.
- Two respondents understood knowledge management to be the capturing of data, the interpretation of it into information and the interpretation of information into knowledge, which is in people's heads or in some electronic media or on paper.
- One respondent saw knowledge management to be the management of the two components, which are knowledge itself, i.e. things that people know in their heads based on experience, training and education and the mechanisms by which you keep knowledge.
- One respondent felt that the way knowledge is managed is about running the business well and training employees well. The respondent felt that if this is done there won't be a need to manage knowledge.

A clearly formulated operational definition for knowledge management does not exist.

Interpretation:
Knowledge management is an evolving area with unclear boundaries; the way it is defined within the business could be to a certain extent dependent
on the current business needs and in the business environment various opinions exist about knowledge management. In broad terms knowledge management could entail: knowledge management as training people to apply existing business information and facilitating the documentation of what people know; traditional management functions; managing the value between data, information and knowledge; the ability to store knowledge and making that information available when required.

5.4.2 Current knowledge management practices
(Question two of interview schedule)

Analysis:
- Two respondents felt that Eskom Transmission Group is practising knowledge management especially documenting the knowledge but not to a large degree.
- Two respondents felt it is a complicated question to answer since Eskom Transmission has knowledgeable people working in the business or that have worked but the problem is in transferring that knowledge through documenting it. The respondents indicated as well that the business has lost a lot skilled people, which make it difficult to replace them within a short space of time.
- One respondent said there is a yes and no answer and it all depends on Transmission's future strategic business focus.
- One respondent said it is not practised as a holistic concept, the business has disjointed initiatives which all involve knowledge management and they do not take into account the impact each one has on another.
- Two respondents indicated that knowledge management is not practised because when someone leaves the organisation sometimes they leave a big gap.
• Two respondents said yes knowledge management is practised through training and also some experienced employees transferring skills to junior employees however there is room for improvement.

Interpretation:
Knowledge management entails other practices like training, succession planning, document management and others and since it is not seen as a separate concept there is ambiguity as to whether it is practised or not. All practices that contribute towards the management of knowledge should be integrated and each area should understand its contribution to the overall management of business.

5.4.3 Critical knowledge
(Question three of interview schedule)

Analysis:
• Five respondents highlighted that critical knowledge is knowledge about the core business of Eskom Transmission, which is being able to plan and strategize regarding the network, as well as understand the plant, its limitations and capabilities.
• Two respondents said critical knowledge is linked to critical skills and two main skills that have been highlighted as critical for Eskom Transmission business in one of the studies done and they are: project management skills and control of the power network.
• One respondent also linked critical knowledge to skills from a different angle saying the business needs the ability to specify what we need for the business and the ability to evaluate and assess that the building block that is delivered by a supplier conforms to our performance and long term requirements.
- One respondent saw critical knowledge to be linked to the business focus areas.
- One respondent answered the question by saying it is critical to ensure transfer of non-tangible knowledge, that is, things that cannot be captured as facts.

**Interpretations:**
It is evident that knowledge about the core business is very critical as this is seen as enabling the business to be able to meet the customer requirements. Even though knowledge about customers was not highlighted in the respondents’ answers, it is somehow embedded in the answer.

**5.4.4 Information systems that could support knowledge management**
(Question four in the interview schedule)

**Analysis:**
The majority of the respondents (six of ten) emphasised that existing systems are mainly data warehouses with data on the network and performance as well as electrical power systems but these data warehouses could assist in managing knowledge if they can turn the data into information which will eventually help in operations as knowledge. The other respondents also highlighted the Internet, Intranet, GroupWare and a decision support system (an executive information system) which is still being investigated as technologies that will assist with knowledge management. One respondent highlighted that the business has put massive investments in systems that had promised good business implementation, however those systems are not fully optimised.
Interpretation:
The business has a number of technologies or information systems that can assist with knowledge management and most of these systems have been implemented to capture data for other reasons not to manage knowledge management.

Most businesses have a number of information systems but the technology is normally not fully optimised. For businesses to obtain full benefits for knowledge management from information systems, they need to look at technology as an enabler towards managing knowledge not that it will manage knowledge for you.

5.4.5 Knowledge management enablers
(Question five in interview schedule)

(a) Enablers for knowledge management

Analysis:
The following were seen as key enablers by the respondents and will be listed in terms of how many respondents mentioned the particular enabler. Please not that each respondent mentioned more than one enabler, therefore the total number of responses would not correspond to the number of respondents:

- People (6)
- Information systems – electronic and manual: (5)
- Leadership commitment (3)
- Culture of sharing (2)
- Coaching and mentoring (2)
- Strategy (2)
- Knowledge repositories (1)
- Teamwork (1)
Interpretation:
People are a key enabler in knowledge management since knowledge resides in people's head and for an enterprise to say they are managing their knowledge people should understand the importance of knowledge management. People should be able to share their knowledge with others by making their knowledge explicit. Information systems would then support or assist the people to have easy access to the information required to perform tasks or make decisions. Knowledge management like any program in an enterprise also requires leadership commitment to create an environment within which people are able to share knowledge and are allowed assimilating as well as practising the knowledge gained.

(b) Which enabler is most important to the success of knowledge management amongst technology, people, processes and culture?

Analysis:
Sixty percent of the respondents rated people as the most important enabler and 40% of the respondents rated culture as the most important enabler.

Interpretation:
Respondents regarded people and culture, as important enablers for knowledge management with people rated high. In comparison to the other enablers people and culture can be viewed as primary enablers to the success of knowledge management. The two are very closely related since people are a critical element in the organisational culture as culture is about the values, beliefs, norms and behaviours that people have in the enterprise.
5.4.6 Key effects of people separating from the enterprise

(Question six of the interview schedule)

Analysis:
The majority of respondents said they are not panicking about the people leaving the enterprise because there are a lot of people still in the business. The impact created by people leaving the enterprise was that sometimes it leaves gaps especially in areas that were manned by people with skills accumulated over a long period. The effect is that they might have left without passing or documenting the knowledge they have and it takes time to train people to come to the same skill level. Hence the time delay can stifle the effectiveness of the business.

Interpretation:
Most of the enterprise's knowledge is and remains in people's heads. From the survey it is apparent that there is little done in ensuring the capturing, sharing and dissemination of this knowledge. Thus when employees leave, sometimes their knowledge is lost to the business but since the business has many other employees the assumption is that if Eskom Transmission train high flyers they will quickly fill those gaps. The effect that people have when they leave the business seems to be difficult to measure and cannot be easily identified. Respondents acknowledged that some of the knowledge workers leave gaps that cannot be quickly filled.

5.4.7 Barriers to establishing a knowledge management program

(Question seven in the interview schedule)

Analysis:
Forty percent of the respondents saw lack of commitment from leadership and the people themselves as a barrier as well as the culture of the business.
Twenty percent saw time and resource constraints as barriers. Another 20% saw change as a barrier, that is, resistance to change, people wanting to retain the status quo. Other barriers given were lack of understanding the concept, lack of co-ordinated information gathering, indiscipline and the inability to get knowledgeable on information technology.

Interpretation:
The indication is that to effectively implement a knowledge management program within an enterprise there needs to be commitment to knowledge management from senior leadership as well as employees within the business. It should also be acknowledged that it takes time to learn new methods and techniques as well as apply them to the benefit of the business. The enterprise needs to make an investment to knowledge management by making time and other resources especially money available. If the above-mentioned things are done in an enterprise it will then create a culture that will support knowledge management.

5.4.8 Source for sustainable competitive advantage
(Question eight on interview schedule)

Analysis:
The opinions of respondents with regards to how knowledge management can be a source for competitive advantage to the business were as follows:

• Four respondents felt that the business needs to harness its intellectual capital, that is, ensuring that knowledge is well captured and passed on such that if there is competition, it will be able to retain the critical mass of people or knowledge for the business to continue. People must be well informed and understand the business.

• Two respondents mentioned that if knowledge is managed it will assist in rapid problem solving, decision making and will minimise the number of
mistakes repeated in the business. Knowledge management will help the business gain a business edge or gain competitive advantage.

- One respondent felt that if knowledge is managed properly, it could be leveraged beyond the borders, for example, involvement of Eskom staff on the Trans Africa Projects. This practice gives the individuals an opportunity to learn as well as earn money for the business.

- Two respondents mentioned that knowledge management will play a key role by giving Eskom Transmission a business edge and bringing costs down.

- One respondent felt that knowledge management helps you harness your competitive edge and if one applies well thought through principles, the business should be able to optimise your knowledge enough to give it that competitive edge.

**Interpretation:**

The relevance of knowledge management is clearly understood based on missed opportunities, operational inefficiencies and time lost which all show severe competitive disadvantage. Knowledge management is regarded as playing a key role in ensuring business edge or competitive advantage through the capturing and sharing of experience and information.

5.5 **FINDINGS**

5.5.1 Knowledge management understanding

Knowledge management is a fairly new concept and a common observation made during the research is that individuals understood the importance of knowledge management to the business but there were different definitions given of what it entails.
The findings are that knowledge management as a formalised concept is a subject in its infancy and there are no common definitions as to what it entails. However, senior management believes that the managing of knowledge is very important to the success of the enterprise.

It appears that a global need exists to market the concept to senior management in order to ensure general and common understanding of the concept. Knowledge management is implicit in enterprises and has been practised since businesses were established. Senior management in enterprises need to understand the concept so that the implicit knowledge management practices can be recognised and formalised.

5.5.2 Existing knowledge management practices

The majority of respondents could not clearly say that the business is practising knowledge management but felt it is practised to a certain extent not to its fullest extent. The reason for this is related to the fact that maybe the respondents do not some of the existing practices as knowledge management practices since it is a new concept.

The findings indicate that very few practices can be seen as knowledge management related and as it will shown later in the research, people are key to the implementation of the knowledge management program. Enterprises therefore need to have a change management program in place in order get support from employees.

5.5.3 Critical knowledge

Knowledge about the core business was seen as critical business knowledge that could be interpreted to mean knowledge about the services of the
business as well as products. Knowledge about business competencies, skills and capabilities was seen as important.

Different industries will definitely show wide differences as this could be based on business needs and focus at a particular moment in time. Therefore each business will have a different strategy for knowledge management which will support its overall business strategy or intent.

5.5.4 Information systems/technology

There are a number of information systems or technologies that are used within the business and some can assist in managing the knowledge. The respondents were asked what existing information systems will assist the business in managing knowledge.

The majority of the respondents highlighted that existing systems are mainly data warehouses with data on the network and performance as well as electrical power systems but these data warehouses could assist in managing knowledge if people can turn the data into information which will eventually help in operations as knowledge. They also mentioned that the business has put massive investments in systems that had promised good business implementation, however those systems are not fully optimised.

Most of the information systems or technologies are new and enterprises are still finding ways of using it optimally. The information systems need to be populated with data and the data has to be kept up to date for it to have real benefit to the business.

Information systems are enablers to managing knowledge and for an enterprise to see its full benefits, it must see information systems from a
knowledge management perspective, which is, that it is a conduit for information or data and needs to be exploited fully in order to realise its full potential.

5.5.5 Knowledge management enablers

People were seen as an important enabler when trying to implement a knowledge management program and information systems or technologies were the next important enablers. The findings are that people are a key enabler in knowledge management since knowledge resides in people’s heads and for an enterprise to say they are managing their knowledge people should understand the importance of knowledge management. People also play a very crucial role in creating the right culture for knowledge management, they have the knowledge in their heads and should be encouraged to share their knowledge with others by making their knowledge explicit. Information systems would then support or assist the people to have easy access to the information required to perform tasks or make decisions.

Knowledge management like any program in an enterprise also requires leadership commitment to create an environment within which people are able to share knowledge and are allowed assimilating as well as practising the knowledge gained.

5.5.6 Key effects of people separating from the business

The majority of respondents said they are not panicking about the people leaving the enterprise because there are a lot of people still in the business however, the concern was that very little is done to ensure the capturing and sharing of what people know before they are lost to the enterprise. Some
respondents acknowledged that the business suffered in a number of ways when key employees left the enterprise.

If knowledge is managed properly, the risk of having knowledge gaps will be minimised because knowledge would have been transferred and documented.

5.5.7 Barriers

Findings suggest that people related issues, for example, people’s unwillingness to share their knowledge and lack of leadership commitment as well as time and resource constraints could be barriers when one is trying to implement a knowledge management program.

People do not like change and one has to understand that it takes time and effort to get people to accept and learn new methods such that they are able to apply them with ease and the practices are embedded in their behaviours. Senior leaders in the business have to understand the value of investing in knowledge management and the benefits of allowing people to have time for knowledge sharing or capturing.

5.5.8 Knowledge management as a source of competitive advantage

The relevance of knowledge management is clearly understood by respondents based on missed opportunities, operational inefficiencies and time lost which all show severe competitive disadvantage. Findings are that knowledge management is regarded as playing a key role in ensuring business edge or competitive advantage through the capturing and sharing of experience and information.
The challenge to today's enterprises is to shift the emphasis from competing for today and even with non-competing or regulated businesses, to focusing on competing for tomorrow. For the enterprise, this implies, having a vision for the future, which will assist in knowing the future, required skills and knowledge.

5.6 CONCLUSION

This chapter attempted to analyse and interpret the recorded data according to the core categories, such as, understanding of knowledge management concept, critical knowledge, information systems, knowledge management enablers, barriers to knowledge management, key effects of staff leaving the enterprise and knowledge management as a source of competitive advantage as identified during selective coding. This chapter also discussed a more conclusive synthesis of the interpretations.

The next chapter discusses conclusions, implications and recommendations on how to implement a knowledge management program in Eskom Transmission as well as other businesses.
CHAPTER 6
CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

In this chapter the findings of the literature survey and the empirical investigation will be synthesized and their implications for knowledge managers discussed in terms of managing knowledge for competitive advantage. Guidelines for establishing a knowledge management program that will ensure competitive advantage for the enterprise will be discussed.

The subproblems mentioned in chapter one, paragraph 1.2.2 will be addressed and discussed in terms of the advent of the knowledge era or information age. This new era will result in information explosion manifesting in the increasing complexity of society, changes in the job market and the emergence of knowledge management, within individual, national and global contexts:

- What is knowledge management?
- What is the significance of this study for enterprises?
- What are the implications of this study for knowledge managers?
- What are the suggestions for further knowledge management research?

6.1 PRINCIPLES TO BE USED IN THE DEVELOPMENT OF A KNOWLEDGE MANAGEMENT PROGRAM

Knowledge management is an integral part of the business. If business, governmental and educational institutions are to survive in the twenty first century, they must not only have automation, but they must also have a comprehensive process for the continuous application of knowledge to their operating environment. For the knowledge management process to be effective, it must meaningfully engage the entire enterprise.
In chapter four the VRIO framework and the five steps involved in establishing a knowledge management program were discussed. The steps outlined were:

- Analysis of the enterprises' orientation to knowledge management.
- Assessment of the external environment.
- Decide and formulate suitable strategies for knowledge management.
- Develop a plan for establishing knowledge management.
- Implement and evaluate program.

Taking both the literature and empirical survey results it is imperative that in establishing a knowledge management program, one understands that people issues, for example, people themselves, culture, leadership, etc. are the blocks to building a successful knowledge management program.

In establishing a knowledge management program the following principles as depicted in figure 6.1 below should be followed. From the empirical survey the need for people and technology issues to be addressed in an integrated manner by the enterprise as part of developing a knowledge management program is very clear. In fact people, technology and process issues are tightly linked and as a result there needs to be a balance between the three components.

The principles are results driven and indicate that people and information technology alone cannot be effective in achieving the outlined business results. These principles also suggests that a new generation of workers, known as knowledge workers will be required to ensure sustained business edge or competitive advantage for the enterprise.
Figure 6.1 Principles of managing knowledge across the enterprise
[Enabling employees with knowledge to meet enterprise needs; adapted from Wysocki & DeMichiell, 1997:18]

<table>
<thead>
<tr>
<th>The Global Market (Understanding what is happening in the world)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Enterprise (Business, Education, or Government): Knowing &amp; understanding whether knowledge is managed</td>
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</tbody>
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<table>
<thead>
<tr>
<th>PEOPLE/CULTURE</th>
<th>INFORMATION SYSTEMS/TECHNOLOGY</th>
</tr>
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<tbody>
<tr>
<td>Characteristics</td>
<td>Knowledge-centric</td>
</tr>
<tr>
<td>Lifelong learning motivation</td>
<td>User friendly software</td>
</tr>
<tr>
<td>Rewards knowledge sharing</td>
<td>Electronic mail</td>
</tr>
<tr>
<td>Strong interpersonal skills</td>
<td>Internet and Intranet</td>
</tr>
<tr>
<td>Self directed in work and life Collaborative, etc.</td>
<td>Decision support systems, etc.</td>
</tr>
</tbody>
</table>

**ENTERPRISE RESULTS**

Enterprise excellence
- Improved process management: strategies and operations
- Empowerment: of individuals:
  - Self directed to plan, design, implement and evaluate
  - Creativity, diversity and cross functionality
- Continued enterprise, process and individual improvement:
  - Learning organization
  - Enhanced and efficient process workflow
  - Enabled individuals: Lifelong learning and career management.

Customer focus
- Deliver service/product at lowest cost
- Develop unique, specialized service/product
- Deliver quality service/product on time
6.2 CONCLUSIONS ABOUT ESTABLISHING A KNOWLEDGE MANAGEMENT PROGRAM

Knowledge management is an old concept but has been recently formalized as a result of the increasing complexity of modern day society. The importance of knowledge and knowledge management as a skill to assist in enhancing problem solving and decision-making processes, has come to the fore in the past decade.

The field of knowledge management is fragmented to a larger extent than one expected, if one considers the multidisciplinarity of knowledge management authors it is not surprising, for example, authors from library and information science, business management, computer scientists, information technologists, and others. In chapter two various authors' perspectives of the term knowledge management were discussed and their definitions stated.

From the findings it can be stated that the respondents had different interpretations of what knowledge management entails, however what was common in most definitions was that people are an important element in managing knowledge, as individuals own knowledge. This therefore implies that people must be willing to share their knowledge; to learn from others and the culture of the enterprise must be conducive and encouraging knowledge sharing. There was also a clear understanding of the importance of knowledge management and acknowledgement that it could be a source for sustainable competitive advantage or business edge even though respondents could not clearly outline how knowledge management can be such a source.

It can be concluded that although the majority of authors in the literature especially outside of South Africa and the majority of respondents in the empirical survey, understand the importance of knowledge management, very few enterprises
especially in South Africa have really adopted the concept of knowledge management. This could be due to the fact that enterprises' see knowledge management as a new concept that involves starting everything from scratch. They fail to see other projects that are currently happening in the enterprise that are knowledge management projects, for example, document management, training or human resource development, mentorship programs, etc.

Propagating a holistic and integrated approach to establishing a knowledge management program entails understanding the importance and benefits of managing knowledge for the enterprise as well as the role of corporate culture and information technology to the success of knowledge management. This has a number of implications for the knowledge management leader trying to establish a knowledge management program or ensuring that knowledge is managed properly for sustainability of the business.

6.3 GUIDELINES AND IMPLICATIONS FOR MANAGING KNOWLEDGE

The VRIO framework presents a number of implications for knowledge management leaders. In general it highlights the fact that knowledge management leaders play an important role in managing the enterprise's intellect assets, those which possess the greatest potential for being sources of sustainable competitive advantage. More specifically, it provides guidance regarding the management of knowledge in an enterprise in ways that create competitive advantage. Below four major implications are outlined together with the questions that should be guides when one is establishing a knowledge management within an enterprise.
6.3.1 Understand the value of knowledge in the enterprise and its role in competitive advantage

Knowing the economic value of an enterprise's knowledge is a necessary precondition before any knowledge management leader can begin to manage the function strategically. Knowledge is now a crucial factor underpinning economic growth. Producing goods and services with high value-added is at the core of improving economic performance and international competitiveness, increasing intangible investment, which is difficult to measure, has become the measure issue for enterprises. Knowledge plays an important role in the success of any enterprise but what knowledge does so and how much may vary across enterprises. This information is a necessary starting point for any knowledge management leader to act as a strategic partner.

A number of enterprises rely heavily on innovation and product development hence their research and development scientists' require relevant, up to date and accurate information as development of successful new products is the major thing that distinguishes those enterprises from competitors. On the other hand service oriented enterprises require a lot of information about their clientele and new ideas on how to serve the customer better. Their competitive advantage can only come through efficient, friendly service that makes their customers to come around again. Similarly, while all knowledge management activities are important, some provide greater leverage for competitive advantage. Therefore, knowledge management leaders must first understand the role of knowledge management as a source of competitive advantage before being able to make decisions about how to position the deliverables of the function. This leads to the following questions for these executives:

- On what basis is the enterprise seeking to distinguish itself from competitors? Is it on innovation, customer service or production efficiency?
• Where in the value chain is the greatest leverage for achieving this differentiation?
• Which knowledge management activities provide the greatest potential to differentiate an enterprise from its competitors?

6.3.2 Understand the economic consequences of knowledge management practices in an enterprise

Once the knowledge management leader understands the specific ways in which knowledge provides value, it is necessary to examine the value that knowledge management provides or can provide. According to research done by Skyrme and Amidon (1997:133) "one in three companies spend more than 25 000 dollars a year collecting and maintaining information; a quarter do not track costs because it is difficult to do so". Despite the fact that few enterprises are costing intangible assets like information and knowledge, there is also a lot of work in coming with ways to economical justify intangible assets to the success of the enterprise. While this research is promising, more research is still required on how, exactly, this impact is gained.

The author believes there are two ways in which knowledge management can provide economic impact. Firstly, knowledge management practices are important levers by which the enterprise develops the intellectual capital and employee efficiency and innovation. It is the knowledge management practices that can directly influence the effectiveness, allowing employees to perform their work smarter and thus providing value to the enterprise. The knowledge management practices can also help to develop knowledge-enabled employees who are willing to make value adding decisions and contributions towards meeting objectives of the enterprise. In other words, knowledge management practices play an important role in developing the knowledge assets that provide competitive advantage.
It is also important to understand that knowledge management practices and knowledge management function incur costs for enterprises. Knowledge management can impact the enterprise performance through its efficiency in developing the intellectual assets that are a source of competitive advantage. The products and services provided by the knowledge management function can be too many or too few, of high quality or of low quality, directly linked to business needs or unrelated to the business. For example, knowledge management practices developed because they are the latest fad, without careful analysis of their ability to meet strategic business needs, are both excessive and inefficient. Similarly, the failure to develop practices that will help address business needs results in less than optimal enterprise ineffectiveness. Finally, knowledge management practices designed to meet business needs that are delivered at excessive cost or with low quality negatively impact the enterprise’s financial performance. Knowledge management leaders need to assess both the menus of knowledge management practices and services offered as well as the quality and efficiency in their delivery.

Enterprises seeking to explore the value created by their functions need to ask the following questions:

- Who are your internal customers and how well do you know their part of business?
- Are there enterprise policies and practices that make it difficult for your internal clients to be successful?
- What services do you provide? What services should you provide? What services should you not provide?
- How do those services reduce internal customers’ costs; increase their revenue?
- Can those services be provided more efficiently by outside vendors?
- Can you provide those services more efficiently?
- Do employees in the knowledge management related functions understand the economic consequences of their jobs?
6.3.3 Understand how knowledge and knowledge management practices in an enterprise compare to those in competing enterprises

The previous two points focus the knowledge management practices within the enterprise. In a competitive environment, however, one cannot ignore the action of competitors or similar businesses, and this is also true of knowledge management. It is necessary to examine the knowledge management functions of competitors or business partners to gain an understanding of what knowledge management practices and relationships define present business edge or competition. This information is only valuable insofar as it is used for developing strategies for changing the competitive landscape to an enterprise's advantage.

Such benchmarking activity has become almost commonplace in industry as enterprises look both within and outside their industries seeking the "best practices." Benchmarking provides information that can be valuable or useless, depending upon how it is used. If the goal of the activity is simply to identify the knowledge management practices of successful enterprises in order to imitate them, then the costs will likely outweigh the benefits. Benchmarking identifies the rules of the competition in an industry and can be maximally valuable in providing information on two issues.

First, it assists enterprises to identify what superior practices the competition or other business is engaged in which might provide them a competitive advantage until other enterprises are able to imitate it. Secondly, benchmarking should be used to identify ways to leapfrog other businesses or competitors. This is accomplished through developing innovative knowledge management practices and is especially successful if they are ones that other businesses or competitors will find it costly or difficult to imitate.
For example as part of its goal to establish best practices in knowledge management and continually improve them, Dow Chemical has engaged in cross industry benchmarking of its Intellectual Asset Management. It identifies potential benchmarking partners from a wide range of industries. These partners must appear to possess best practice in the area of interest; each partner must have something to gain from the other. An important part of Dow’s approach is that it does not have a separate benchmarking department or team. It is competency that is built within the business units and within individuals.

In the field of intellectual asset management Dow has conducted full benchmarks with more than ten companies and is part of a Knowledge Collaborative and The Intellectual Capital Manager’s Group (Skyrme and Amidon, 1997: 474-475).

Enterprises need to understand knowledge management practices in relationship to other businesses or competitors as a means of identifying which practices should be copied to maintain competitive parity; which practices can be innovatively delivered to provide temporary advantage, or which practices can be linked to the unique situation (history, management systems, culture, etc.) of the enterprise in order to gain sustainable competitive advantage. This understanding leads to the following questions for enterprises:

- How do the knowledge management skills of other businesses or your competitors compare to those of your enterprise?
- How does the commitment level to knowledge management of your enterprise leaders compare to that of other businesses or your competitors?
- What are other businesses’ or your competitors’ knowledge management functions doing in terms of practices and relationships with line managers? How can you beat them by doing things better or differently?
• What unique aspects of your enterprise might allow you to develop and/or maintain high quality knowledge management practices?
• What knowledge management practices need to be developed or maintained to exploit these unique aspects of your enterprise?
• Given your enterprise's history and culture, what unique knowledge management practices might you be able to implement more efficiently and effectively than other businesses or your competitors?

6.3.4 Understand the role of the knowledge management function in building enterprise capability for the future

A constant tension exists in the trade-off between focusing decision making and resource allocation on the short and long term in most enterprises. This conflict also exists within the knowledge management area. Many knowledge management areas are struggling to meet current needs that they have little time to explore long-term enterprise plans. This tendency must be broken if knowledge management is to be a strategic partner in ensuring a sustainable business.

Planning is the key to any enterprise's effective use of knowledge resources. Developing strategies is no longer just a long-range planning function by top leadership within the enterprise as it has been perceived in the past. It is not a support activity infrequently performed over a period of years, documented, and mostly unread by a majority of the workforce. Instead, planning is a dynamic process that continues throughout the year. Hence, the knowledge management leaders should ensure that knowledge management practices support the planning process for short and long-term.

Enterprises must consider the future enterprise's needs through answering the following questions:
What is the enterprises' core business and skills, or the core business and skills the enterprise is trying to develop in the next five - ten years?

What will be the competitive landscape five - ten years from now in terms of your enterprise's markets?

What kind of knowledge management practices will your enterprise need to compete successfully five years from now?

What types of knowledge management practices are needed today to build the enterprise needed in the future?

6.3.5 Guidelines for establishing a knowledge management program

Knowledge management is very much a cross-functional and multifaceted discipline. Therefore for knowledge management to be successful in an enterprise one should have good understanding of the various activities/practices that make knowledge management and how they interrelate, in short, a holistic view is very important. From many factors that contribute to success, the following guidelines should be used when establishing a knowledge management program:

- **Ensure s strong link to the business imperative.** A knowledge management program and processes should visibly support business objectives. The 'value proposition' is clearly articulated, such as "better customer service", "more targeted products", even if the value of knowledge management itself cannot be calculated. There should be a clear understanding of what knowledge is vital to the enterprise's future prosperity.

- **Use the business vision.** Generally, an enterprise’s vision provides the ‘hook’ around which to build a common language and momentum for change. It may also define key domains of knowledge and core knowledge value-enhancing processes. One should therefore ensure that the knowledge management vision is based on the overall business vision and supports it.
• Assign a knowledge leader. This is usually a knowledge champion with support from top management. It should not be made a separate portfolio but the knowledge champion should encourage development of knowledge management qualities in individuals throughout the enterprise.

• Cultivate a knowledge creating and sharing culture. A corporate culture that empowers individuals supports networking and encourages knowledge sharing across the enterprise and geographic boundaries. This might require using change management methods and it might take time. By involving employees from the beginning of the program, the opportunity is created for them to develop understanding of the importance as well as accept the knowledge management program.

• Encourage continuous learning. Learning should happen at all levels of the enterprise structure. Individuals must be encouraged to ask questions, to challenge and to learn. The enterprise learns from its successes and mistakes. For knowledge management to be successful learning must be shared.

• There must be a well-developed technology infrastructure. Enterprises need to have an infrastructure that supports collaboration of knowledge-enabled workers as well as explicit knowledge databases, it should support computer conferencing and structured conversations. A well-developed technology that is accessible and easy to use will leverage knowledge management within an enterprise.

• Develop systematic enterprise knowledge processes. A framework and processes for identifying, capturing and diffusing important knowledge in a structured way must be developed. Sources of information or knowledge carriers must be easily identifiable and accessible, whether in databases or in human brains.

For small-localized pilot projects, not all guidelines are important, but these guidelines are important in those enterprises that are truly transforming themselves into knowledge enabled enterprises. Many of the lessons of the effective management of change and introducing IT systems also apply, such as engaging in partnership with business units and users. The distinctive characteristics of successful knowledge
management is the attention given to the human information network, its nurturing and development, and providing the custodians and developers of knowledge with appropriate support and tools to encourage greater knowledge and information flow within and beyond the enterprise.

Some of the guidelines are supported by the empirical survey in chapter five. There is definitely a need to become strategic partners with the business leaders and to design a good knowledge management infrastructure in conjunction with business leaders and users.

6.4 RECOMMENDATIONS

In view of the findings certain recommendations are made for Eskom Transmission Group. Although these recommendations are based on the findings from one enterprise in the South African context, they may be relevant to any enterprise in an international context. The recommendations are thus generalized for wider consideration. Suggestions for enterprises that want to manage their knowledge assets in order to ensure sustainable business edge or competitive advantage are:

- Keep in mind the big picture and future business vision - the global strategic vision - but “tackle small things, one at a time, in this bigger jigsaw- that’s the way that progress is made”.

- Ensure close partnerships between the knowledge leader with business units, but start small and grow. This means working on a variety of small projects with different units. “Small projects with tangible outcomes help create goodwill and trust. This creates more willingness to explore new ways of doing things with the knowledge leader, and that’s when the real breakthroughs come”.

- Instill a general awareness in employees as well as business leaders about the importance of managing knowledge.
• All business leaders should be ambassadors of knowledge management, they should encourage their employees to share their knowledge, to transfer their knowledge to others and to put their knowledge on paper or electronic media where possible

• Develop an infinite patience, as knowledge management will need cultural change, and that takes time and it might also take time for the business to see increased return on the investment made.

• Above all for employees to be knowledgeable they must be allowed to experiment, obviously not to the detriment of the business, in order to learn from failure. Employees should not be afraid of making mistakes but should be encouraged to share the lessons learned in order to curb repetition of the same mistake.

6.5 SUGGESTIONS FOR FURTHER RESEARCH

Knowledge management research must balance people and technology issues and rediscover the basic role of knowledge management in the enterprise, which is to support business leaders and employees in effective decision making and improved performance. Enterprises will manage knowledge as an attempt to survive in the complex business world where innovations are quickly replicated by competitors and smaller enterprises’ often gain market share from larger ones by introducing superior services and products.

As outlined at the beginning (in chapter one, paragraph 1.2.1) this study attempted to assess the relevance and importance of knowledge management within an enterprise as well as ascertain how the knowledge management can ensure sustained competitive advantage or business edge in an enterprise.
A number of research questions that warrant further research came up during the research project:

- How can one assess an enterprise's readiness to formalizing the knowledge management concept?
- How can enterprises gain usage rights over employee knowledge?
- How does one develop a knowledge-based culture within an enterprise?
- How can one measure the transfer of knowledge especially if one makes it a component of an individual's performance contract?
- Development of a framework for evaluating long-term viability of the knowledge management program.
- Impact and influence of technology in knowledge management.

6.6 CONCLUSION

This chapter discussed the proposed framework for managing knowledge by enabling employees with knowledge to meet enterprise needs and implications of managing knowledge to ensure sustained competitive advantage to knowledge leaders. The most important point emerging is that there needs to be a holistic and integrated approach when establishing a knowledge management program within an enterprise. Knowledge management is not a stand-alone practice; it is a result of interrelated activities within the business.

Enterprises must realize that survival and success in the post industrial era depends highly on the capacity to manage human intellect or knowledge, being able to convert it into useful services and products and thus it is important that knowledge is harnessed and well managed.
SOLICITATION LETTER

TO: ESKOM TRANSMISSION BUSINESS AREA LEADERS
FROM: LORNA NDLELA
SUBJECT: KNOWLEDGE MANAGEMENT RESEARCH
DATE:

I need about 20-30 minutes of your time to assist me with my research on knowledge management, more specifically, on "developing guidelines for establishing a knowledge management program in an enterprise that will ensure competitive advantage". This is for my mini dissertation in partial fulfillment of a Masters degree in Information Studies with Rand Afrikaans University (RAU).

Knowledge management involves the planning, organizing, directing and controlling of knowledge within an enterprise. Most of knowledge resides in people's heads, for after all, individuals must identify, interpret, and internalize knowledge. For knowledge to provide an enterprise with sustainable competitive advantage, such knowledge must be independent from any given individual.
My study, which began in February 1999, done under the guidance of Prof. A. S. A. du Toit, has thus far included a literature survey on knowledge management and assessing why corporate culture is important in establishing a knowledge management program. In this stage of my work, I am focusing on conducting interviews with the business area managers.

The objective of the interview is to check the following:

1) Awareness and understanding of knowledge management.
2) Knowledge management practices in the business.
3) Drivers for knowledge management.
4) Critical business knowledge.
5) Key enablers in implementing knowledge management
6) Barriers
7) Contribution of knowledge management in positioning the business for sustainable competitive advantage.

Would you kindly indicate your availability during the period starting 16 August 1999 and 10 September 1999. I would like to hold the interviews during lunchtime or after work, at a time that best suits you.

Your participation and cooperation would be greatly appreciated.

Best regards,
Lorna T Ndlela
APPENDIX B
Questions for structured/survey interview

1. What do you understand knowledge management to be or what does knowledge management entail?

2. As a leader/manager in the business do you think knowledge management is practiced in the business? If yes, how.

3. What do you consider to be critical knowledge for the business?

4. Which of the existing information systems or technologies could support knowledge management?

5. (a) What would you consider as key enablers for knowledge management?

(b) Most authors see key enablers in implementing knowledge management as people, processes, culture and technologies. Which one amongst the four would you consider to be critical to the implementation of knowledge management and why?

6. Most South African businesses have the racial and gender equity drive to satisfy. Because of this enterprises are losing experienced and knowledgeable people, what is the effect of employees leaving the enterprise?

7. What would you see as possible barriers to the effective implementation of knowledge management?
8. How do you see knowledge management contributing in positioning the business for sustainable competitive advantage?
APPENDIX C
DATA PRESENTATION FOR CHAPTER 5

The data presented below are selected verbatim quotations of respondents as recorded during the interviews. The paragraph numbering corresponds with headings of paragraphs in chapter five to facilitate easy cross-referencing. In order to maintain the anonymity of respondents, they are identified using numbers with the letter “R” for respondent, e.g. respondent 1 = R1, and so forth.

5.4.1 UNDERSTANDING OF KNOWLEDGE MANAGEMENT CONCEPT

5.4.1.1 Opinions of respondents with regard to what knowledge management means.
The ten respondents responded as follows:

R1: Well, KM is a new concept for me but I would make a link with intellectual capital, that is, knowledge that is in your business. In order to meet business needs we need to build knowledge capacity, for example by giving knowledge to entrants to the organization? It would also include aspects of how you retain previous knowledge, e.g. in our particular case, how you would deal with manuals, retain knowledge in the system planning guidelines.
I guess KM would also include information systems support to do business, for example, compiling a database for power system planning.

R2: I think it's capturing information, data that people have and in this point in time preferable in the form of standards so that it can be kept as reference and in future be reviewed. Sometimes embedded within the knowledge management philosophy there is some form of rationale because the philosophies are just compromises, one of the mistakes done is we capture knowledge and loose the rationale. Knowledge management means capturing the philosophies we operate to, in our special case
technical knowledge, it must be supported by a rationale.... Another portion of knowledge management is to capture knowledge today so that we can leverage it in future...

**R4:** Um, there isn't much of a difference between knowledge management and information management or well my understanding of information management is probably much wider than most people see it. When people hear information management they think information technology. I think there are basically two components to knowledge management: firstly, the knowledge itself, in its literally form, things that people know in their heads which is based on their experience, formal training, education or whatever. Then it goes to the further extreme on the other hand of actually, just bare data which although is not knowledge itself, it is the basis on which certain things can be created and captured which then becomes knowledge... The second component I see is the people itself or take it even wider is the mechanisms to run the knowledge you need certain mechanisms by which you keep knowledge. Again that can be anything from computers, paper filing systems, etc. So that's a wide, I think, description of what it entails and if you say knowledge management those are the two components and how do you manage them...

**R6:** I understand knowledge management to mean a collection of knowledge that is relevant to the business, putting that information to some kind of environment that makes it easily accessible to the whole business at a time when that information is required. That also, in my mind, encompasses ensuring that knowledge is not lost when employees leave the organization.

**R8:** My understanding of knowledge management is that it is the capturing of data, the interpretation of it into information and the interpretation of information into knowledge, that is actually in people's heads or could be resident in a form of electronic media or on paper. So that basically formulates methodologies and
practices in executing certain things, it could be in pursuit of a specific job or in pursuit of a practice in business. So that formulates your knowledge and the management thereof is actually knowledge management. It is the intelligent application of the information.

5.4.2 CURRENT KNOWLEDGE MANAGEMENT PRACTISES

5.4.2.1 Opinions of the ten respondents with regards to practices of knowledge management within the business were as follows.

**R1:** Yes and No. I am sorry to give you such an ambiguous answer, but this depends on Transmission's future strategic business focus. What I mean is that we might decide to continue the business as we did in the past, that is, to do design, go for an inquiry, etc. and this implies more control of knowledge in-house. In that case there is a shortcoming as we are loosing a lot of design skill. Another alternative would be keeping investment decision making in-house and going externally for provision of solutions on turnkey basis. I think in following that route our KM is not poor but we would have to develop other skills like contract management.

This very much depends, as I have mentioned before, on the future strategic business focus.

**R2:** I believe when you look at Eskom overall, look at the way that documented information is captured, with the Technology Group they have done the most. Transmission itself, I think no we haven't done a very good job. I think we have people that accept the responsibility to take information from people that are leaving and to treasure it, but it seems to reach the end of line and just dies. We lack a full documentation system and formal archiving system and also the formal review.
initiation system. So speaking about leveraging knowledge into the future, I think there are some areas where I have seen it being done effectively, but...

**R4:** Not necessarily. I think definitely as a concept, as a holistically managed concept, no. But then I think not in any company... No it doesn't happen in Eskom and Transmission, but it is a qualified no, in a sense that certain things are happening, for example, we have information, people and knowledge, the way in which we manage it is not always a holistic approach, that I see as a shortcoming.

But I am sure that if one recognizes the concept as a holistic concept, just focus on some strategic areas in which you can improve, so that those improvements becomes more of a holistic approach towards the general area of knowledge management instead of individualistic efforts. We seem to jump within the business from training, which to my definition is part of knowledge management, to the next focus, which becomes succession management and there are information system developments, which have no direction, then we jump to the bandwagon of configuration management. There seems sometimes to be a bit disjointed efforts, which do not take into account that the one affects the other.

**R6:** Em, I think we are practicing it to some degree but not to a large extent and this is in the form of policies, standards and procedures, those documents that keep information and we make it available to employees. Some of these documents are available in the Eskom Web and Transmission Web site for use by members of the business. So we are practicing it but to a limited degree.

**R8:** We are not practicing knowledge management because we tend to view that hierarchy of data, information and knowledge as discrete components rather than a whole, so as such we don't. That is actually reflected in the way we do work, the fact
that somebody leaves the organization and we end up with a lull, its evidence of; lack of knowledge management practice.

5.4.3 CRITICAL KNOWLEDGE FOR THE BUSINESS

5.4.3.1 Responses of respondents with regard to what is critical knowledge for the business. The ten respondents responded as follows:

R1: Critical knowledge for the business would be knowledge relating to our core business and more specifically to plan and give strategy regarding the network as well as being able to specify customer requirements and solving problems encountered in the network.

R2: In my area specifically, which is design and applications, I would say it is the ability to specify what we need for our business, I cannot rely on a supplier or contractor to dictate to me what we need. So that ability to walk into a substation and say on a big picture I need to place that building block, that judgement, that ability, that knowledge to be able as a person to make that decision must be protected. Once you have actually looked at the building block and how you gonna achieve that building block, than you can start using contractors because you have specified and scoped the boundaries.

The second part is then the ability to evaluate and assess a building block, that is, the building block that is delivered by a supplier conforms to our performance and long term requirements. The evaluation techniques, in some cases, are very complex. You have to have a very good knowledge of the system, how it operates, its weakest points so that we can simulate those conditions in portions of the network.

R4: Not Transmission specifically, the thing that I am specifically worried about the most, is the transfer of the non tangible knowledge, things you cannot capture as
facts, data in a database or whatever, things that have to be managed as well. But the passing on or transferring of knowledge that lot of skills that have been built up over a number of years, its actually that knowledge which is seated on those people and in some of those systems that we haven't, OK, whether its right or wrong. I'm not gonna argue that, but due to the pressure on the business as such in the last five to six years, is in my opinion, has not been given ample time to allow for that natural transfer to happen... It's that almost non-tangible part that needs to be transferred which I think is critical.

R6: I think it is the knowledge of our core business, that is, related to the high voltage procurement of electricity and delivery to Eskom Distribution and our other major customers. Knowledge around that area is critical and it can be knowledge on the lines; the primary plant, the secondary plant and it can be knowledge on the practices related to the maintenance of the system, to operating the system on the line. So our critical knowledge is knowledge or information related to our core business.

R8: In deciding what type of knowledge we really need to capture in an organization like Transmission, we need to understand what is central to the business of Transmission. I believe that if we look at the business of Transmission, which is basically saying that it is a transport of electricity, knowledge should be captured around that core business; transporting of electricity and the infrastructure thereof, how to maintain it and how to run it, the total lifecycle of the infrastructure. The other processes are basically supporting mechanisms, therefore, finance, for example is not a core... So the knowledge that you want to capture is centered around the core, what you define as Transmission's business, is in my own mind, the lifecycle of transporting of electricity between Generation and Distribution and to manage the total lifecycle management and the infrastructure on which this transporting happens.
5.4.4 INFORMATION SYSTEMS/TECHNOLOGY

5.4.4.1 Responses to what existing information systems will assist in managing knowledge. The responses were:

R1: First, a database for electrical characteristics of power systems, this database describes the system for modeling to see and react to the future. We would like this database to expand to include aspects of reliability, for example, how often the power system is expected to fail how long it will be in service, etc.

Another database includes input data for loading; ... One of the uses of this system is to do the scanning of the environment.

We have systems governing the recording of information on projects, this is however not electronic but it is a good system. Systems on performance, for instance, the report of network performance and the quality of supply information.

Other systems include the industry related information on the internet, I however do not use it much but I believe other individuals in the systems planning area use the internet; IEP planning process which is the corporate process residing in the Technology Group; and the economic planning parameters.

R2: Not that I am aware of. If we look at plain data we can start looking at Phoenix, TRAIN, etc. which are all capturing actual events that happen on the network. I think in some cases that we have huge amounts of data captured. Its there ready to be turned into knowledge, but, um I think for the main thrust, the rest of the organization does not use information technology extensively for knowledge management.
R4: Eh... look for me the question is a bit difficult since I have this view that in knowledge management the really important thing is people not the system. If I can change the question slightly, to say “where is the most important information stored which can help or assist generally with knowledge transfer in terms of the technical side of the business.” It is certainly in Phoenix, whether it is a good system or not, I am not going to argue the merits of it, but where the current information lies, most of it, whether it is up to date or not but that where I would like to see it in future...

R6: We have a lot of databases with a lot of information that needs to be used as knowledge. But the existing systems that assist with knowledge sharing are the Intranet, Internet and the electronic mail system (GroupWise). Otherwise all other system are data carriers and we just need to turn the data or information and make it knowledge.

R8: I am not going to focus at systems as product but I will look at, for example, systems more generic. Financial systems could actually provide you with that because, you can track exactly from your financial system, where your human resources have been applied, the time, the application, the materials that were used in executing certain jobs and the cost of those resources being employed in executing certain things.

When you look at the maintenance of your network which is Transmission’s business in the transporting of electricity, the maintenance system will provide you with a very good base as input to your knowledge management because from there you can build your workflow and workflow patterns... So there must be integration of all there three areas your financial systems, maintenance systems as well as human resource systems.
5.4.5 KNOWLEDGE MANAGEMENT ENABLERS

5.4.5.1 Comments on what are the key enablers in implementing knowledge management.

The ten respondents responded as follows:

R1: Definitely a defined strategy, that is future direction, aligning your future knowledge requirements to the strategy, operationalise those activities, execute your plans. Some of the enabling mechanisms are the expert systems, formal documentation both electronic and manual, retention of knowledge workers, transfer of skills and capacity building.

R2: I think you need to have acceptance, people need to understand the need to capture and document knowledge. The best results from previously are achieved through whip and chain command. People were told thou shalt write this document, people always think there is time tomorrow and they do not feel the urgency to attend to it. So I think as an enabler we need very strict discipline. Organizational or senior management acceptance the political/managerial will power to make it happen because it is so easy for things to never happen. If the will power is there from the top we can than very easily start to create targets and incentives. Senior experienced people in the organization should be compelled and forced to write papers as part of their jobs, whether its standards or conference papers, all trying to reflect the way we operate...

One needs support and commitment. People must understand the need to capture and manage knowledge. Other enablers are that people need to write the documents do not know how to write quality documents and they need assistance also the actual systems used to capture documents.
R4: People, people of all levels in the organization. One tends to think, that well, as a normal first glance answer, yah, management must support it. People really need to buy in to the concept of knowledge sharing in general not just old to young but vice versa, on the same level. If people do not buy into the concept you've got a problem. So the key enablers are people and the culture of sharing and passing on knowledge, you know, it's actually two things working against each other because very soon even though they might not do it intentionally or realize it actively or consciously but very soon people also learn that knowledge is power and what you do with that power or how responsive you are in employing that fact depends on the culture in the organization. Because the very same thing that is so powerful (knowledge is power) can be very positive or very negative as well. It's mine, that makes me indispensable or think that it makes me indispensable from the organization but that only happens if there is something in the culture of the organization that allows that to happen or which causes people to act that way.

So I think that the most two important things are the people themselves and the culture about do you share or not share knowledge.

R6: I would say key enablers would be, if we can motivate our staff, that is, our key employees to view information or knowledge as a competitive tool that they should cherish and strive to keep within the organization and protect that knowledge. Also if we can motivate our people to share that knowledge as much as possible especially given the many people that are coming to the business and the equity drive we are on. I see that as big challenge and if we can get that on the go, it would be big start and it would be an enabler.

And also one of the most important enablers is having an information system that is accessible to most people and an information infrastructure that would allow this information to be kept and to be made available easily when required. We also need a champion to take this forward.
R8: The key enabler for one thing is the information technology or information systems. The other enabler is the flow process. So I think to a large extent technology plays a very vital role in terms of capturing knowledge and interpreting that into practice. The one other thing is people so it’s sort of a triangle with people in one corner, the other information technology and the other finance. For example you cannot have knowledge management without the financial backing or resources.

5.4.5.2 Normally people, processes, culture and technologies are seen as key enablers in implementing knowledge management. Which one amongst the four would you consider to be critical to the implementation of a knowledge management program? The respondents responded as follows:

R1: Well, people since you need them to buy in to the program for it to fly.

R2: Definitely, people since you need to have their acceptance and they need to understand that they to capture and document their knowledge.

R4: Yes the technology, yes the processes but many a time I have seen that you’ve got the greatest technology and processes but the concept is not right in people’s minds and it falls flat, whereas the reverse can actually happen, you don’t have to have the latest technology and best processes in the world.

If there is a willingness amongst the people to make something work, to share knowledge than you can have yesterday’s technology as well and they will probably just be successful if not more successful than having the latest technology, than those things really become enablers but they are not a necessity.

R6: I would see the people as the most important because all other things would not work if people don’t buy into knowledge management. It would be like putting the cart before the horse and if you don’t do anything, nothing will happen. You can
have processes and technology, but if people do not want to use those nothing will happen. The most important thing to do is to motivate the people to want to keep the information, to share what they know and to ensure that our potential competitors do not get that information.

**R8:** Look no doubt, you can have the information technology, money and people but if there is no culture than there is no basis, in fact, the others are secondary enablers, primarily you need to have culture of the organization right, without that you do not have the basis. So you need to establish and inculcate that culture in the people because knowledge management in today’s organization should be viewed in line with the total learning organization movement, we don’t separate that. If you want to create a learning organization knowledge management is an important component of that.

### 5.4.6 EFFECTS OF PEOPLE SEPARATING

**5.4.6.1** Responses of respondents with regard to effects of people separating from the organization especially experienced people leaving the organization to ensure that racial equity targets are met.

The ten respondents responded as follows:

**R1:** Well... in systems planning there has been very few separation packages, Transfer of knowledge is via the buddy - buddy system. A lot of knowledge in our area is documented. We also present formal courses, such as the SAPSSI, which is another way of transferring knowledge.

**R2:** I think what is crucial is that experience people, people with twenty years experience and in senior positions playing key role, their knowledge must be documented. They should therefore be encouraged to document what they know.
before leaving and to also have a junior individual working with them for a great period in order to be able to pick up the not so easy to document knowledge. This is however not necessary for the lower bands.

R4: I think it's in general that one would expect the business to have learned lessons not to make the same mistakes again. That is the business as an entity but the business as an entity can only achieve that if only those people who made the mistakes learned from it and can mainly pass that learning on to newer people. If that doesn’t happen what needs to happen is that every generation has to learn from mistakes again. So it put you one or two steps backwards in that people will have to go through the same learning process as others and not have the benefit of not having to make the same mistakes before they learn or struggle so long than they may pick up something within six months or a year of walking in someone's shadow... So it's the time delay that happens which in turn can stifle the effectiveness of the business, how quick decisions can be made, opportunities that goes by mainly because people were not aware of those opportunities to grab because later on these are the things you have to watch out for.

R6: I do not believe that they have any key effect on the business except that they might have left without passing on their knowledge whether through documentation or mentoring or coaching someone.

R8: My belief is that that is a critical area that we need to attend to, we need to ensure that we capture the knowledge that is resident in people's heads for the benefit of the incumbents. The mere fact that there is no business strategy to capture that, clearly shows that on the part of management or on the part of think tanks or the strategists of the business, there is no focus or deliberate intention to ensuring that we capture that knowledge. Knowledge management as a discipline is not elevated to right levels that it should, that it deserves in Transmission and therefore it becomes an
impediment in terms of previously disadvantaged people in attaining the necessary knowledge and therefore the experience that results in delays in terms of learning... If we had knowledge management as a disciplined focus in Transmission from a strategic point of view we would in fact be in a position to solve a lot of problems that previously disadvantaged people are facing...

5.4.7 BARRIERS

5.4.7.1 Responses of respondents with regard to what they see as possible barriers to the effective implementation of a knowledge management program.

The ten respondents responded as follows:

R1: Time, time is one definite barrier, transfer of skills in a short time, it is not easy to transfer experiences in short space of time, especially experiences gained over a long time.

Another barrier is dedication or commitment from the people with knowledge to transfer.

R2: There are a lot of barriers. The first one is apathy. People don’t care about documenting what they know, lack of incentives, lack of targets being set. Lack of management commitment. Possible future obstacles could be silos in the organization, dishonesty, and political turf. Also knowledge lost already especially in the two and half years the staff turnover has been high.

R4: The understanding of the concept is probably the biggest reason in that it leads to more specific symptoms of that reason. If you don’t understand the concept and take it that knowledge management is databases or information systems and people get to a fit whether they should have SAP, Phoenix or buy Maximo, whatever, becomes a debate about technology. The fact that they get so involved in that
argument makes them miss the whole point and that's where you don't get to the real issue of knowledge management. That I see as the biggest stumbling block...

R6: I think the key barrier at the moment is the change that we are going through in the country, it makes a lot of people insecure. We have racial and gender equity, so people would want to hold on to their knowledge as much as possible as they would view efforts at sharing that knowledge as a way of getting their knowledge and then disposing of them. I see that as biggest barrier. Another barrier is the culture we come from, where we did not have a systematic way of keeping information. Thirdly, another barrier I see, my perception, is that our information infrastructure is not in a very good state and I think we need to do a lot of work in that area to ensure that we have an information infrastructure that can handle our knowledge or information base...

R8: With the same breadth that we've said there are enablers, the very enablers could in fact be barriers. Ok, culture is one of the key ones; it could be a major barrier because it's actually centered on people's behavior. Finances, it could be a barrier in that if you don't have the necessary finances to undertake and implement this, that becomes an impediment so it becomes a barrier.

Lack of coordinated information gathering from data right up to knowledge, could become a barrier and lack of appropriate of technology and its application in the business.

So those are the key things that I see could be barriers. But also as well, lack of a strategic direction from leadership, which is taking the organization, could become a barrier and therefore result in the organization not focusing on knowledge management as one of the important focus areas.
5.4.8 KNOWLEDGE MANAGEMENT AS A SOURCE FOR SUSTAINABLE COMPETITIVE ADVANTAGE.

5.4.8.1 Opinions of respondents with regards to how knowledge management can contribute in positioning the business for competitive advantage. (When asking this question, the interviewer explained that even though Eskom Transmission Group does not have competitors at the moment, in future the business could encounter competition and needs to start ensuring that it has sustainable competitive advantage.)

The ten respondents responded as follows:

R1: Sustainable competitive advantage must mean you must continuously attract customers away from other locations in the world. Attract investments from industries that mean provide quality supply at a lowest cost. In order to do that we need, hmmm--- need to gender:

- entrepreneurial skills
- keep good technical skill in-house to come up with these ehh... high & low quality products
- price competitively and the whole thing of pricing is very difficult.

I think we should also drive the existing system, for example, different maintenance practice, excellence in refurbishment and source capital at a competitive rate.

R2: Competitiveness, I would face it and say this, the majority of practices in Eskom is not vastly dissimilar to practices in other utilities, in fact, we stole a lot of practices from European utilities to South Africa. But I think it is our knowledge of how we deviated that makes our philosophies or adaptations unique. I think there is also knowledge of weaknesses in the system, ehh, that if that information were to be passed on, we would find our performance starts spiraling down.
A competitor will be a brand new utility, such a player will have a unique advantage of starting afresh, and they can buy people and skills. In such a scenario, Eskom in general will find itself greatly short changed. Eskom will have huge machinery that is aging but no capacity. So I think from that side of it, it is essential that if we expect competition we should be able to defend our intellectual capacity and capture it.

R4: If I can just get the concept of sharing knowledge as a culture in the organization, it has its benefits but as I say, you don’t have to relearn the same lessons. You don’t necessarily sometimes have to bang your head against the wall twice but you can minimize the number of mistakes that’s repeated, you can really get your worth out of having employed, trained or exposed a person for so many years. You don’t have to go and make the same investment all over again on a young individual, as some of the knowledge could actually already sort of having been passed on. That in itself makes sure that the knowledge stays inside the company and you can actually benefit from that knowledge which you have paid for and just that, would be in any organization a competitive edge because it is not just a problem within Transmission how to manage knowledge, but it is a very wide and generic problem... Just the fact that you do not have to make expensive mistakes can in itself be an advantage.

R6: I think knowledge is very critical to ensuring that the business is successful because it is based on the knowledge that you are able to deliver a quality product to the customers. All that knowledge we have managed to acquire since Eskom was formed is cumulative, it is that knowledge that enables us to know what to do to deliver a good quality product to our customers. A new company would not have that cumulative knowledge base and it would have big disadvantage. Well some people may leave but still if we have a good knowledge system than we will still retain a critical mass of people and knowledge that would enable the business to continue and remain competitive.
R8: If knowledge management can assist you in rapid problem solving mechanisms, in rapid decision making processes, in a sense that you don't have to go and reinvent the wheel. You don't have to follow ten processes before you could come to the eleventh one when you could actually go directly and solve problems. But because things that we deal with are in fact unique, these are things that people have experienced over the years, there could be one or two things that are new but surely somebody else has found answers for these things. Knowledge management could assist the businesses to gain a business edge or gain competitive advantage against competitors if you are in a competing environment, to quickly or rapidly come to decision making or problem solving.
BIBLIOGRAPHY


