



CHAPTER 3: KNOWLEDGE MANAGEMENT ISSUES, POLICIES AND STRATEGIES

3.1 Introduction

In the quest to determine if efficient and effective knowledge management do indeed lead to accelerated growth, profitability and sustainability, Chapter 2 focuses on the evolution of strategy and the role of knowledge in this evolutionary process. It is argued that even though knowledge means different things to different people, knowledgeable reasoning will continue to play a crucial and enabling role in the formulation of winning strategies. In this context, Zack (1999) argues that one can assume that the ability to exploit intangible assets needs to become far more decisive than the ability to invest and manage physical assets. In agreement with this viewpoint, Laudon and Laudon (2004:315) claim that 'knowledge assets are as important for competitive advantage and survival, if not more important, than physical and financial assets'.

While it is easy to state that knowledge must be incorporated into strategic thinking, according to Davenport (1998), Earl (2001), and Von Krogh, Nonaka and Aben (2001), it is not obvious how this should be done, or even how this resource should be managed. In the latter part of the nineties, Davenport (1998) emphasises that although many companies are beginning to feel that knowledge is their most valued asset, only a few have actively begun to manage knowledge efficiently and effectively, especially on a daily basis. Arguably, this statement by Davenport is still applicable today. In similar fashion, Earl (2001) argues that even though organizations accept that knowledge can enhance performance, they often do not know where to start managing knowledge. Von Krogh, Nonaka and Aben (2001) concur and assert that although strategic managers know perfectly well how to manage tangible assets, they battle to analyse knowledge and allocate resources according to knowledge activities. Earl (2001) is of the opinion that the difficulty inherent in managing knowledge can be attributed to the fact that knowledge management, like knowledge itself, is extremely difficult to define. Darroch and McNaughton (2002) attribute this phenomenon to managers not agreeing on what



knowledge management really entails and/or to the complex nature of knowledge. Darroch and McNaughton (2002:211), therefore stress that until there is a widely accepted definition of knowledge and knowledge management, measuring knowledge management and identifying its effects on outcomes such as innovation and a firm's performance will be very difficult.

Whatever the turmoil, due to the strategic significance of knowledge, strategists are now faced with a rapidly growing need to find and improve on ways to create, locate, manage and ensure that the power of knowledge is leveraged and shared throughout the organization. The need to imbue knowledge management with good governance and accountability is becoming increasingly important.

3.1.1 Aim

The aim of this chapter is to determine if there are any issues/models/methodologies or perspectives available in the literature on the subject, from a knowledge management point of view, to guide strategists in their efforts to manage knowledge effectively.

3.1.2 Scope

In order to supply a strategic perspective on the line of reasoning followed throughout this chapter, all issues/models/strategies discussed, are meticulously brought into context with business strategy formulation. In the attempt to remain true to this notion and in order to answer the above-mentioned aim, special emphasis is placed on the following:

- Defining knowledge management.
- Conceptualising knowledge management with regard to strategy formulation.
- Identifying and describing the issues surrounding knowledge management.
- Identifying and defining strategies to govern knowledge management.
- Discussing the need to create knowledge domains.



The main thrust of this chapter is not only to identify issues, policies and strategies that are pertinent to the effective management of knowledge, but also to relate these entities to one another, thus determining whether or not there is a chronological sequence of events that needs to take place in order to institutionalise knowledge management successfully.

3.2 Definition of knowledge management

According to Roffe (1999:224): ‘Knowing the strengths and weaknesses of a particular management tool is one challenge, but its practical application inevitably involves another, in the shape of change of one form or another. Such change in turn creates a new set of problems that too often seem unique to the individual, the department, or the organization. In reality, someone else has already solved the problem and the real complications are in finding, and then gaining access, to the solution. This dilemma has spawned yet another tool (activity): knowledge management’. Knowledge management is thus a managerial activity, and according to Zack (1999:125): ‘the primary focus of these efforts (in knowledge management) has been on developing new applications of information technology to support the digital capture, storage, retrieval and distribution of an organization’s explicitly documented knowledge’.

Based on descriptive and inductive research, Earl (2001) in analysing the classification and typology of ‘schools’ of knowledge management, came to the conclusion that knowledge management is not just another IT application. Earl (2001:218) argues that: ‘knowledge management endeavours are concerned with both explicit and tacit knowledge and both internal and external knowledge, and goes on to say that ‘some also encompass what some may see as information systems’. Zack (1999) stresses that only a small number of organizations are attempting to manage tacit knowledge. Ndlela and du Toit (2001) argue that in managing knowledge, a holistic and integrated approach should be followed. Providing a more holistic view of knowledge management, Darroch and McNaughton (2001:211) maintain that: ‘Knowledge management is the management function that creates or locates knowledge, manages the flow of knowledge within the organization and ensures that the knowledge is used effectively and efficiently for the



long-term benefit of the organization'. In agreement with this, Laudon and Laudon (2004:315) argue that knowledge management increases the ability of organizations to learn both externally and internally, and define knowledge management as: 'the set of processes developed in an organization to create, gather, store, transfer and apply knowledge'. In essence what all these authors are saying is that knowledge management is more than the processes that drive it, more than the technology that institutionalises it, more than the people that govern it - knowledge management is the custodian of the evolution of organizational learning.

3.3 Knowledge management in relation to business strategy

According to Henczel (2000:210), 'the challenge for today's information professional is to identify the information that is needed to optimize the achievement of organizational objectives, who it is needed by, how it will be used, its sources and how it flows through the organization and between the organization and its external environment'. In the previous chapter (section 2.4), it was argued that strategy is the quintessential moment of truth, the moment when all knowledge is supposed to come together. Zack (1999:126), after researching the knowledge management practice of more than 25 firms regarding 'which knowledge management efforts are appropriate', and 'what knowledge should be managed and developed', comes to the conclusion that: 'the most important context for guiding knowledge management is the firm's strategy'. Zack (2001:08) later amends this statement to read: 'a firm's business strategy should reflect the role of knowledge in helping the firm to compete', adding that 'once the role between strategy and knowledge is defined, then other aspects of strategic management such as resources allocation, organization design, product development and market segmentation can be configured to bolster knowledge strengths, reduce knowledge weaknesses, etc.' In essence Zack (1999, 2001) emphasizes that in the quest to formulate winning strategies, strategists should not only assess the enabling role knowledge plays in strategy formulation, but should also assess the filtering role that strategy plays in the allocation of resources needed to effectively manage knowledge. This interdependency between knowledge and strategy is the cornerstone on which all knowledge management endeavours rest. In agreement with



this, Snyman and Kruger (2004:15) argue that: ‘The successful management of an organization’s resources in the next century will be determined to a greater extent by the organization’s ability to combine knowledge management with a thorough understanding of principles involved in business strategy formulation to guide the development of information resources for the firm. Only when combined with direction setting (setting a vision, architecture and a technology plan) and excellent management of the intellectual assets, can an organization perform most effectively’.

In analyzing all the different perspectives on strategy formulation from a business as well as a knowledge management point of view, Snyman and Kruger (2004), come to the conclusion that business strategies and knowledge management strategies should feed upon each other and need to work interdependently. This statement is synonymous with the line of reasoning followed by authors such as Bate (1999:38), who states that: ‘a knowledge management strategy needs to ensure that the destination is consistent with corporate ambitions, that the techniques, technologies, resources, roles, skills, culture etc. are aligned with, i.e. *support* business objectives’. Unfortunately, according to Zack (1999), even though the link between knowledge management and strategy is widely acknowledged, it is for the most part still being ignored by business. Laudon and Laudon (2004), building on earlier work done by Grover and Davenport (2001), and Davenport, Thomas and Cantrell (2002), argue in similar vein that it is very difficult to integrate knowledge management programs with business strategy, possibly due to the difficulties inherent in managing and aligning processes and interactions between information technology and social elements in organizations.

3.4 Issues of knowledge management

Due to the uniqueness of knowledge management as a management science, and also because only a limited number of organizations implement knowledge management within an organizational setting, Davenport’s statement about knowledge management still being in its infancy, is just as applicable today as it was eight years ago. Davenport (1998:01), in contemplating the value knowledge management can add to an



organization, proposed that companies should refrain from embarking on detailed knowledge management tactics, and as a point of departure should rather focus on high-level knowledge management issues: ‘When an organization decides what principles it agrees upon with respect to knowledge management, it can then create detailed approaches and plans based upon these principles’. It would seem that for organizations just beginning to embark on knowledge management ventures, this proposition by Davenport is still of extreme significance. Before trying to institutionalize knowledge management practice, organizations should, as a point of departure, concentrate on finding principles that bestow governance on knowledge management. Owing to the importance of defining issues in the quest to determine suitable criteria for assessing the effectiveness and efficiency of knowledge management practice, the issues Davenport (1998) describes will be briefly summarized in the following section.

3.4.1 Knowledge management is expensive

Davenport (1998:02), states that: ‘Knowledge is an asset, but its effective management requires investment of other assets’ and goes on to say ‘But while knowledge management is expensive, the obvious retort is that not managing knowledge is even more so. What is the cost of ignorance and stupidity? How much does it cost an organization to forget what key employees know, to not be able to answer customer questions quickly or at all, or to make poor decisions based on faulty knowledge?’ This argument is in agreement with work done by Zack (1999), Murray (2000) and Tiwana (2000). These authors argue that the cost of having suitable knowledge available to people such as strategists, is non-negotiable. Unfortunately, Zack (1999) is also of the opinion that because it is so difficult to allocate costs to knowledge management, managers are refraining from allocating funds at all.



3.4.2 Effective management of knowledge requires hybrid solutions of people and technology

Davenport (1998) argues that humans excel in interpreting, understanding, visualizing, combining and synthesizing information into knowledge. On the other hand, computers surpass humans when it comes to the capture, transformation and distribution of knowledge. Given this mixture of skills, Davenport (1998:03), points out that: ‘we need to construct hybrid knowledge management environments in which we use both human and computers in complementary ways’. As an example, Davenport suggests that when compiling computerized databases of organizational knowledge, entries recorded should contain just enough information to capture the reader’s interest, and include the name and contact details of the bearer of knowledge. In addition, Henczel (2000) argues that solid information technology is an essential prerequisite for developing knowledge management strategies. Gurteen (1998) agrees with this statement and argues that ICT is the channel for representing, organizing and deploying knowledge. Scheraga (1998), similarly, is of the opinion that without having suitable Information Technology in place, organizations will never fully be able to exploit the value of knowledge.

3.4.3 Knowledge management is highly political

In trying to answer the question: ‘what does knowledge politics mean for effective knowledge management?’ Davenport (1998:03) disagrees with managers who decry politics and argue that it only gets in the way of sound business practice (especially if knowledge is used as a power tool, leading to lobbying, intrigue and back-room deals). Instead he maintains that: ‘astute managers of knowledge need to acknowledge and cultivate politics. They need to lobby for the use and value of knowledge - at the highest level, they need to shape the governance of knowledge to better utilize it across the organization’. This statement by Davenport is in agreement with a statement by Ndlela and du Toit (2001) to the effect that knowledge management requires committed and



strong leadership and a change in both attitude and behaviour to bring about the successful management of knowledge.

3.4.4 Knowledge management requires knowledge managers

Davenport (1998) emphasizes the fact that all strategic resources (human resources, finances, IT, Infrastructure, etc.) have substantial organizational functions devoted to their management, and argues that until some group within an organization is specifically given the responsibility for knowledge management, knowledge will not be well managed at all. Once established, the knowledge management function should accept responsibility for collecting and categorizing knowledge, establishing a knowledge-orientated technology infrastructure and monitoring the use of knowledge. Taking cognizance of the fact that knowledge management is political, Davenport (1998:04) maintains that the knowledge management function should not: 'seek to assemble and control all knowledge', as this could lead to political play and resentment, but should rather: 'merely facilitate the creation, distribution, and use of knowledge by others'. In agreement with this, Davenport (1998), Taylor, Small and Tatalias (2000), Tiwana (2000), Logan (2001), and Laudon and Laudon (2004) all assert that as a starting point in institutionalizing knowledge management, it is imperative that a knowledge management department and knowledge management team be appointed.

3.4.5 Knowledge management benefits more from maps than from models

Davenport (1998:04) warns that: 'It is tempting when managing knowledge to create a hierarchical model for knowledge, similar to the Encyclopedia Britannica's Propaedia, that would govern the collection and categorization of knowledge'. Davenport (1998) proposes that organizations should rather let the knowledge market work, and simply provide and map the knowledge that is really needed. In agreement with this, Zack (1999:132) says that: 'categorizing or describing what a business firm knows and must know is not easy'. In order to ease the retrieval of data, Davenport proposes the use of a map or a thesaurus with the capacity to link technical terms to terms used by the



knowledge requester (client). In similar fashion Tiwana (2000), contemplating key lessons that successful knowledge management projects have taught, maintains that ease of use and ease of retrieval are crucial to the process of effectively and efficiently sharing and tapping into the organization's knowledge pool. Tiwana (2000) stresses that knowledge sharing and retrieval should never be blurred by cryptic interfaces that are hard to decipher and use, but should rather be kept simple and straightforward.

3.4.6 Sharing and using knowledge are often unnatural acts.

Davenport (1998:05), argues that knowledge is personal. To the knowledge bearer it is an extremely valued resource: 'people have a natural tendency to hoard their own knowledge: and to look suspiciously upon knowledge from others'. Davenport stresses that making information available will not necessarily lead to widespread sharing and use of knowledge. 'We should realize that sharing and usage have to be motivated through time-honored techniques - performance evaluation and compensation, for example'. What Davenport is proposing is that managers and especially strategists should not only be assessed with regard to how effectively and efficiently they manage knowledge, but also with regard to their ability to share and use it in collaboration with others, again emphasizing that knowledge must be shared in order to be of real value to the organization. In similar fashion, Tiwana (2000) argues that all problems cannot be solved by an intranet, an intelligent search engine or a database. People possess a natural tendency to keep knowledge to themselves, and according to Tiwana (2000:172), the only way to overcome this natural tendency, is to 'give incentives that are too attractive to ignore'.

3.4.7 Knowledge management means improving knowledge work processes

Davenport (1998:05) states that: 'knowledge work processes of any type are only rarely addressed in process improvement initiatives' and stresses that in order to improve knowledge management, not only must generic knowledge management processes be improved (creating, e.g. research; packaging, e.g. publishing; and applying, e.g. system



development), but special attention must also be devoted to processes where knowledge is generated, used and shared intensively (market research, product design and development, and especially strategy formulation).

3.4.8 Knowledge access is only the beginning

Building on the previous notion, Davenport (1998:06) argues that: '(knowledge) access is important, but successful knowledge management also requires attention and engagement'. In similar vein to the propositions of Davenport, DeLong and Beers (1998), Von Krogh, Nonaka and Aben (2001), Darroch and McNaughton (2002), Snyman and Kruger (2004) and others, Davenport (1998) argues that different types of knowledge necessitate different information engagement approaches. Davenport asserts that 'knowledge consumers' should become more than just passive recipients. To get everyone actively involved with knowledge, Davenport proposes 'war gaming' exercises, 'role-playing' exercises, 'close interaction' and even 'fraternization' between knowledge sharers (internal as well as external). In agreement with Davenport, Bate (1999:40) emphasizes that knowledge management must transcend conventional boundaries: 'An effective knowledge strategy requires a constructive dialog among information professionals, IT professionals, management and HR, and an insight into each other's domain of contribution'.

3.4.9 Knowledge management never ends

Davenport (1998) argues that the tasks of knowledge management are never-ending; the external environment is always changing and companies change their market focus, strategies, technologies, management approaches, etc. Zack (1999:132) concurs, saying that: 'Knowledge is not static, and what is innovative knowledge today will ultimately become core knowledge tomorrow'. According to Davenport (1998), these rapid changes in the competitive environment require that mapping or modelling a particular knowledge environment should never be too extensive and time consuming. In order to be able to



adapt to change quickly, descriptions of knowledge environments should be ‘quick and dirty’.

3.4.10 Knowledge management requires a knowledge contract

Taking cognizance of the fact that issues surrounding intellectual property law are extremely vague, Davenport (1998) proposes that there should be policies and/or at least some kind of contract between the employee and the organization to govern the retention and use (and usage rights) of knowledge (employee and organizational).

Viewed holistically, what these above-mentioned principals propose is that before an organization embarks on any knowledge management endeavours, the following should be in place:

- There must be a conscious decision to invest in knowledge management.
- It must be agreed upon that knowledge management must be an efficient and effective process; all endeavours in knowledge management must lead to growth and profitability.
- It must be accepted that there is going to be a need for hybrid knowledge management environments – technological and human.
- There must be high-ranking knowledge champions, people who are familiar with the organization’s politics.
- A working knowledge of the management function, with a high-ranking officer guiding this function, should exist.
- There must be a conscious decision that only knowledge that is of strategic value will be mapped.
- A working definition must be formulated, describing the organization’s knowledge dictionary. This dictionary should have the capacity to link technical terms to terms used by knowledge requesters.
- A conscious decision must be taken to judge people according to their ability to share knowledge.



- A conscious decision must be made to constantly improve knowledge work processes.
- There must be an explicit drive to get all employees involved in knowledge-sharing exercises.
- The focus of knowledge management should be on quality not quantity.
- There should be a knowledge contract between the company and the employees.

Earl (2001:218), drawing on both descriptive and inductive research, proposes a typology of different ‘schools’ of knowledge management¹⁹. Earl argues that each school represents a particular orientation of intervening with the organization. Although at a much higher conceptual level than the principles proposed by Davenport (1998), the knowledge management classifications proposed by Earl (2001) also address fundamental knowledge management ideas. Technocratic schools address the idea that specialist knowledge should be validated, mapped, captured, codified, controlled and updated in knowledge bases. Without information and communications technology (ICT) these schools would not be feasible. In order to facilitate the dissemination of knowledge, the use of knowledge dictionaries is advocated. Furthermore, contributions to knowledge bases should be rewarded, and there should be a continuous drive to improve knowledge processes. Earl (2001) maintains that in contrast to ‘technocratic schools’, ‘economic schools’ place more emphasis on exploitation of knowledge and less on exploration of knowledge, i.e. emphasis is placed on protecting and exploiting knowledge assets to produce return on investments. According to Earl (2001), the ability to aggressively manage the property value of knowledge, and the ability to manage intellectual assets as routine processes can be seen as the success factor behind these schools. Behavioural schools promote the breakdown of ‘knowledge barriers’, emphasizing that connectivity between knowledge workers should be increased, and advocating the bundling of groups of people with common interests, problems and expertise (in organizational structures

¹⁹ Schools of knowledge management:

* Technocratic – based on information and management technologies.

* Economic - commercial in orientation, explicitly creating revenue streams from the exploitation of knowledge and intellectual capital.

* Behavioural – stimulating and orchestrating managers and management to be proactive in the creation, sharing, and use of knowledge as a resource” (Earl, 2001).



and networks), with a common goal to share knowledge. According to Earl (2001:216), a subsection of the behavioural school (the strategic school) is essentially concerned with raising consciousness about the value of knowledge as a strategic resource, and considers knowledge management to be the essence of competitive strategy. Earl, however, stresses that: 'no claims are made that any school outperforms others'.

In contrast to Davenport, Taylor, Small and Tatalias (2000) view knowledge management from a two-dimensional perspective. According to Taylor, Small and Tatalias (2000), the first dimension consists of knowledge exchange, knowledge capture, knowledge re-use and knowledge internalization, i.e. activities critical to the creation of knowledge. However, Taylor, Small and Tatalias are of the opinion that this dimension is built on a second, higher-order dimension, consisting of elements that enable or influence knowledge creation activities. According to Taylor, Small and Tatalias these elements include:

- Strategy – the alignment of corporate and knowledge management strategies.
- Measurement – the measures and metrics captured to determine if knowledge management improvement is occurring or if a benefit is being derived.
- Policy – the written policy or guidance that is provided by the organization.
- Content - the corporate knowledge base that is captured electronically.
- Process – the processes that knowledge workers use to achieve the organization's mission and goals.
- Technology – the information technology that facilitates the identification, creation and diffusion of knowledge among organizational elements within and across enterprises, for instance an enterprise portal.
- Culture – the environment and context in which knowledge management processes must occur (Taylor, Small and Tatalias, 2000:2).

Logan (2001:29) emphasizes that certain factors are prerequisites for the successful implementation of knowledge management processes. According to these authors before



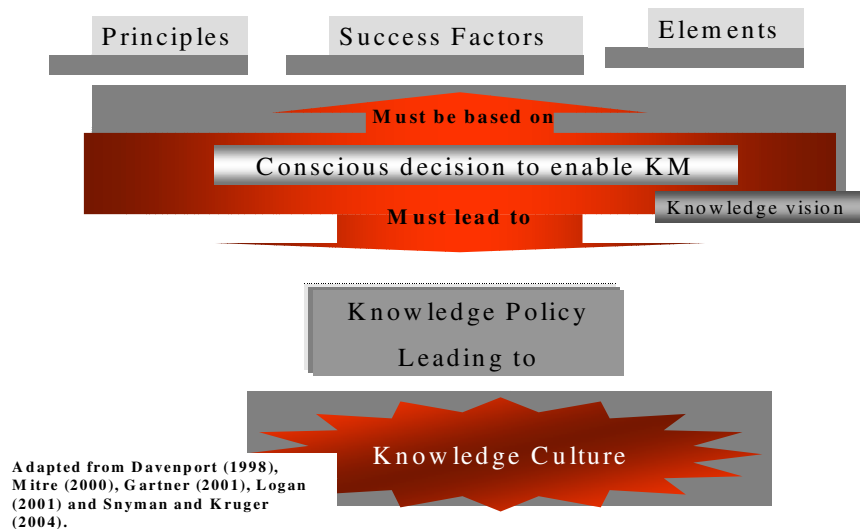
attempting to embark on a knowledge management programme, the following should be taken into account:

- ‘Knowledge management must be linked to the strategic direction of the organization.
- Knowledge management requires an organizational culture and discipline that promotes and supports knowledge sharing, collaboration across and among employees/business units, and a drive toward innovation.
- Knowledge management must be enabled by robust business and human processes.
- Knowledge management depends on a compelling technology environment to automate the processes and to support collaboration and the knowledge management discipline.
- Knowledge management requires an extended-enterprise scale and scope of processes, people and content; additionally, this expanded-enterprise view must support both formal and informal relationships’ (Logan, 2001:02).

Viewed holistically, as far as their fields of study overlap, principles proposed by Davenport, elements proposed by Taylor, Small and Tatalias (2000), knowledge management ‘schools’ proposed by Earl and success factors proposed by Logan (2001) address the same issues and concerns. What these authors are trying to emphasize is that before any endeavours in knowledge management can commence, organizations should not only explicitly recognize that knowledge is of strategic importance, but more importantly there should be a conscious drive towards establishing a culture of knowledge within the organization. This line of reasoning concurs with an argument proposed by Ndlela and du Toit (2001:152). These authors argue that ‘people are the key component of knowledge management; hence the type of culture existing in the enterprise is crucial to the success of knowledge management’. In essence, by institutionalizing these issues, organizations will create an organizational environment conducive to nurturing knowledge. Ndlela and du Toit (2001) argue that even though establishing a ‘knowledge-friendly culture’ is one of the most vital success factors for

managing knowledge, it is extremely difficult to achieve. Merely attempting to institutionalize these principles should present strategists with a future vision of how to set the stage for the efficient and effective management of knowledge (refer to Figure 3.1).

Figure 3.1: Setting the stage for knowledge management



Earl (2001:216) maintains that: ‘in terms of practice the (above-mentioned) taxonomy could help a firm select a knowledge management “strategy” or even answer the question “Where do we start?”.’ Earl suggests that after a conscious decision has been made to embark on knowledge management, organizations should formulate a statement of corporate purpose, a vision that embodies or embraces knowledge. In essence such a vision should encapsulate the ‘contribution that knowledge-based value creation can make’, to the organization. In a similar manner, Von Krogh, Nonaka and Aben (2001), using Unilever as a case study, stress that in order to make any knowledge management endeavour succeed, top management must, as a point of departure, concede that the management and development of knowledge and creativity is of strategic importance, i.e. set the stage for the formulation of a knowledge vision. Snyman and Kruger (2004) clarify this notion even further, arguing that certain principles not only form the basis for developing an organizational knowledge vision, but in order to encapsulate them (to



institutionalize a knowledge culture), organizations should also embark on the formulation of a knowledge policy. According to these authors this policy should comprise of high-order guidelines on how the organization is going to capture, access, reuse, qualify, account, exchange, secure and protect knowledge resources, as well as address issues concerning confidentiality, privacy, cost and value, ownership/intellectual property, and misuse of information and knowledge. Snyman and Kruger (2004) go on to say that the knowledge policy should be ‘non-negotiable’ in terms of objectives, targets and actions (for achieving knowledge excellence), and as such should provide governance not only of the formulation of knowledge management strategies, but also of the business strategy. However, even though the idea of creating a knowledge vision might be a step in the right direction, and even if policies are put in place to set the stage for the creation of a knowledge culture, in itself a knowledge vision cannot guarantee that knowledge will lead to organizational growth and profitability. It would seem that for knowledge to have real value it must be brought into context with where the company is going in future (Davenport, 1998; Zack, 1999; Taylor, Small and Tatalias, 2000; Logan, 2001; Snyman and Kruger, 2004). This statement is also in agreement with an earlier proposition by Manville and Foote (1996: online) to the effect that knowledge-based strategies²⁰ begin with strategy and not knowledge. ‘If a company does not have fundamentals (strategic guidelines) in place, all the corporate learning, information technology, knowledge databases will be of no use. A company needs to know the kind of value it intends to provide and to whom’. What Manville and Foote (1996) suggest is similar to the proposition that knowledge management should be governed (or filtered) by strategy before detailed knowledge management plans can be made. As argued, the future knowledge vision and knowledge management policy lend themselves to inculcating a knowledge culture in the organization.

²⁰Care should be taken not to confuse knowledge-based strategies with the organization’s knowledge management strategies. Knowledge-based strategies are business strategies based on knowledgeable reasoning. These strategies are governed by high-order strategy and policy, thus also the knowledge strategy and knowledge policy. Primarily these strategies are the organization’s generic strategies (cost, focus, differentiation), aimed at achieving the organization’s ultimate goals. Not all knowledge-based strategies are knowledge management strategies, but all knowledge management strategies should be knowledge-based strategies.



It should be noted that the knowledge vision and policy by no means determine or even focus on the incision points (within the organization) where knowledge is specifically needed. In order to achieve this, knowledge must be aligned with the knowledge requirements of the organization. In the previous chapter (section 2.4), it was argued that this resides within business strategy formulation. Of interest is the fact that Taylor, Small and Tatalias (2000), Earl (2001) and Logan (2001) all identified the alignment of corporate and knowledge management strategies as the number one success factor in all knowledge management endeavours.

To illustrate the interdependency between knowledge and strategy, when the principles proposed by Davenport (1998), the elements proposed by Taylor, Small and Tatalias (2000) and the success factors proposed by Logan (2001) are brought into context with business strategy, the following are revealed:

- Strategy governs the allocation of money to resources.
- Strategy is the drawing of a synthesis to determine hybrid solutions.
- Strategy is high-order politics.
- Strategy is the most precious point on the knowledge management agenda, the point at which knowledge, skills and information inject their greatest value into the organization.
- Strategy is also instrumental in setting a vision, architecture and a technology plan to govern improvements in intellectual assets and knowledge management processes.
- Strategy never ends, needs a constant supply of knowledge, and most definitely needs to be protected from prying eyes.

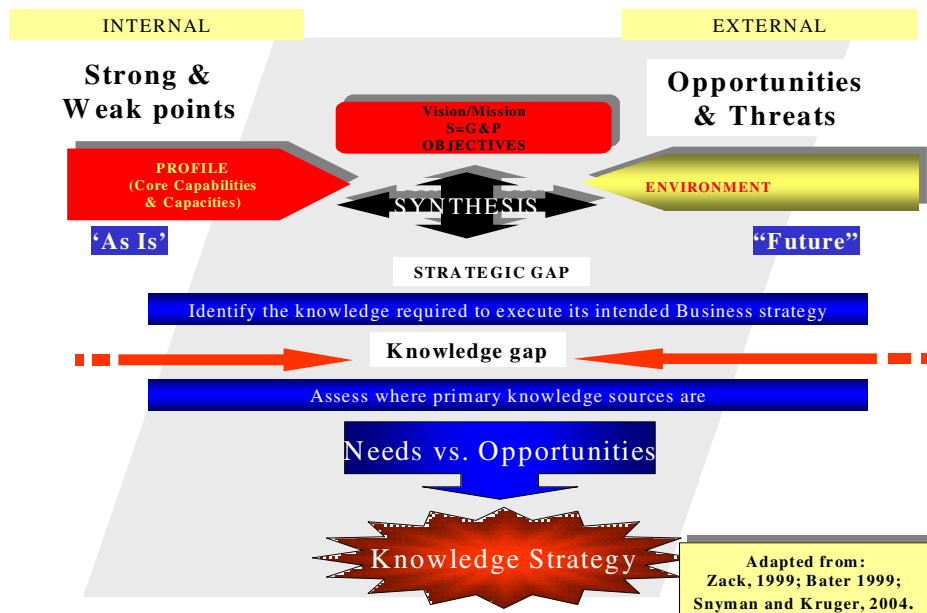
These issues not only highlight the interdependency between knowledge and strategy again, but also emphasise the fact that for knowledge to have real value, it must be brought into context with where the company is going to be in future. Quoting the words of Tiwana (2000:103) 'Knowledge drives strategy, and strategy drives knowledge management' and he continues 'Without a clearly articulated link between knowledge

management and business strategy, even the world’s best knowledge management system will deliver zilch’.

3.5 Strategies to govern efficient and effective knowledge management

According to Zack (1999, 2001), the conscious drive to inculcate a culture of knowledge should culminate in the formulation of a strategy oriented towards understanding what strategic knowledge is, and why it is strategic (refer to Figure 3.2).

Figure 3.2: Formulation of a knowledge strategy



The line of reasoning followed by Zack (1999) concurs with a statement by Bater (1999). In assessing the nature of what is to be handled – knowledge and information, Bater (1999) proposes that organizations should formulate a knowledge strategy as a point of departure.

Zack (1999), in explicating the link between strategy and knowledge, suggests that the traditional SWOT framework can provide a basis for describing a knowledge strategy.



Zack (1999) argues that, as a point of departure, a firm must first draw a synthesis between what it is actually doing (and what it is capable of doing), and compare this to what must be done in order to remain competitive. In a similar manner, Earl (2001) argues that a grounded way of discovering where knowledge management initiatives should be aimed is to analyse performance gaps in the business. However, Snyman and Kruger (2004) building on the works of Bater (1999) and Zack (1999; 2001), maintain that even before an organization can draw a synthesis between what it is doing and what it is supposed to do in order to remain competitive, as a point of departure it should assess the use of knowledge and knowledge systems in support of core business functions and processes. According to these authors, this assessment should not only review the way in which knowledge flows through the organization, but also assess the manner in which knowledge is captured, exchanged and reused in the organization. In similar fashion Davenport and Prusak (1998) argue that organizations cannot take full advantage of knowledge resources if they fail to first identify and appreciate the value of the knowledge they already possess. Snyman and Kruger (2004) are of the opinion that special emphasis should be placed on determining the quantity and the quality of knowledge resources, both implicit and explicit, and also the strengths and weaknesses of the organization's knowledge management and knowledge management structure. According to Snyman and Kruger (2004), this constitutes a knowledge audit, and if this audit is conducted in an effective and efficient manner, it should provide strategists with a clear picture of the 'As Is' knowledge profile of the organization. Analogous to the earlier proposition by Zack (1999) and Earl (2001) that firms need to compare their actual knowledge to the knowledge required to execute their intended strategies, Snyman and Kruger (2004) propose that after assessment of the 'As Is' (knowledge) profile, strategists need to determine whether or not this profile is adequate to ensure the achievement of the organization's primary goals and strategies²¹. Zack (1999), Earl (2001) and Snyman and Kruger (2004) feel that this type of analysis will reveal strategic knowledge gaps and set the stage for the development of a knowledge strategy. In order to formulate such a

²¹ 'In order to excel in strategy formulation, businesses should, as a point of departure, determine how the competitive environment of the organization could change in future and how the organization, through knowledgeable reasoning, could transform competitive forces in order to create a favourable future' (Snyman and Kruger, 2004:11).



strategy, Zack (1999) states that strategists need to determine whether primary sources of knowledge are internal or external to the firm. Zack is of the opinion that assessment of knowledge resources (internal and external) present strategists with a ‘need vs. opportunity’ scenario, or stated differently, a knowledge gap. According to Zack (1999:133), ‘together these characteristics help a firm describe and evaluate its current and desired knowledge strategy’. The line of reasoning followed by Zack (1999), and Snyman and Kruger (2004), is similar to a proposition by Henczel (2000). Henczel (2000:214-215) maintains that three audits²² are needed to move an organization from information management to knowledge management, and argues that the first step (in developing knowledge management strategies) is to identify where knowledge exists and where it is needed to support decisions and actions.

Zack (2001), in revisiting some of his previous statements, warns against the danger of confusing knowledge strategy with knowledge management strategies. According to Zack (2001), assessing where knowledge sources are situated, what constitutes an organization’s knowledge resources, what knowledge is strategically needed and what opportunities knowledge represents, implies a notion of knowledge-based strategy, that is competitive business strategy built around a firm’s intellectual resources and capabilities. In contrast to these high-order strategies, Zack (2001: online) is of the opinion that knowledge management strategies define the processes and infrastructure for managing knowledge. ‘Once a firm identifies opportunities, threats, strengths and weaknesses related to its intellectual resources and capabilities, then actions it may take to manage gaps or surpluses (e.g. recruiting for particular skills, building online documentary repositories, establishing communities of practice, acquiring firms, licensing technologies, etc.) are guided by knowledge management strategies’.

²² Needs analysis. ‘A process by which information users are asked precisely what information resources or services they need to perform their jobs’. Information Audit. ‘Goes one step further in not only finding out what information resources and services people need to do their jobs, but how these information resources and services are actually used’. Knowledge Audit. ‘Is conducted to identify an organization’s knowledge assets, how they are produced and by whom’ (Henczel, 2000:214-215).



In order to bridge the strategic knowledge gap, Zack (1999) argues that strategists can either increase knowledge in a particular area, or leverage existing but under-exploited knowledge resources. Earl (2001) argues that the line of reasoning followed by Zack in formulating a knowledge strategy, unfortunately only addresses the exploring of knowledge to support business strategy. Earl proposes that once performance gaps and knowledge opportunities are identified, a realistic conceptualisation emerges, enabling strategists to formulate a knowledge business vision. Earl, however, stresses that the gist of the reasoning followed by Zack (1999) (and himself), is to ensure that knowledge management initiatives are linked to business strategy.

Von Krogh, Nonaka and Aben (2001:427), building on the work of Zack (1999), maintain that 'leveraging knowledge throughout the organization; expanding knowledge further based on existing expertise; appropriate knowledge from partners and other organizations; and developing completely new expertise by probing new technology or markets', are all strategies that organizations can use to manage knowledge. Leveraging knowledge throughout the organization and expanding knowledge further based on existing expertise, as proposed by Von Krogh, Nonaka and Aben (2001), relates to Zack's (1999) proposition about leveraging existing internal knowledge resources. On the other hand, appropriating knowledge from partners and other organizations and developing completely new expertise by probing new technology or markets relates to Zack's notion to increase knowledge in a particular area. In a similar manner, Earl (2001) proposes that in order to 'operationalize the knowledge strategy intent', organizations should examine possible knowledge management initiatives. These initiatives should lead to the formulation of a knowledge management programme, with resources allocated to it, and a plan to execute it (Earl, 2001). Of interest is the fact that Earl (2001) contends that different knowledge management initiatives relate to the different knowledge management schools. Earl therefore argues that critical success factors highlighted in these different schools' taxonomies could be used as guidelines to formulate knowledge management programmes. This statement by Earl is of the utmost importance, for it indubitably links all endeavours in knowledge management to the essence of all



knowledge management issues, the need to institute and grow a knowledge culture within the organization.

It should be noted that Von Krogh, Nonaka and Aben (2001) and Earl (2001) are referring to knowledge management strategies and not strategies to emphasise what strategic knowledge is, and why it is strategic, i.e. the knowledge strategy as proposed by Zack (1999) and Bater (1999). Read in context, what Zack, Earl and Von Krogh, Nonaka and Aben are proposing is not only ways to formulate knowledge management strategies, but in fact also a re-look at the way strategy is formulated (kindly refer to arguments proposed in Chapter 2, sections 2.4.2 and 2.4.3). Not only is emphasis placed on managing knowledge within the organization's domain, but also on the fact that knowledge should be managed even beyond the sphere of the organization. Referring to the institutionalisation of knowledge management strategies, Zack (1999:133) asserts that; 'not only will a high level of knowledge processing be necessary, but due to the environment changing rapidly, organizations may need to create new knowledge just to remain competitive, e.g. be a knowledge explorer, creator or acquirer'. In a similar manner, Von Krogh, Nonaka and Aben (2001:421), maintain that: 'the two core processes of knowledge creation and transfer (internal and external) are central to the execution of these (knowledge management) strategies, as is the company's domains of knowledge'.

Determining and assessing 'knowledge gaps' are what Bater (1999), Zack (1999), Earl (2001) and Snyman and Kruger (2004) term a 'Knowledge Strategy'. In contrast, strategies to further explore, acquire, transfer, capture, codify, share, distribute and create knowledge are managerial strategies aimed at addressing knowledge gaps, and growing the organization's knowledge culture. The strategies proposed by Von Krogh, Nonaka and Aben (2001), and the knowledge management programme proposed by Earl (2001), are therefore similar to the knowledge management strategies proposed by Zack (1999), i.e. strategies to ensure that knowledge is available (institutionalised) to answer future

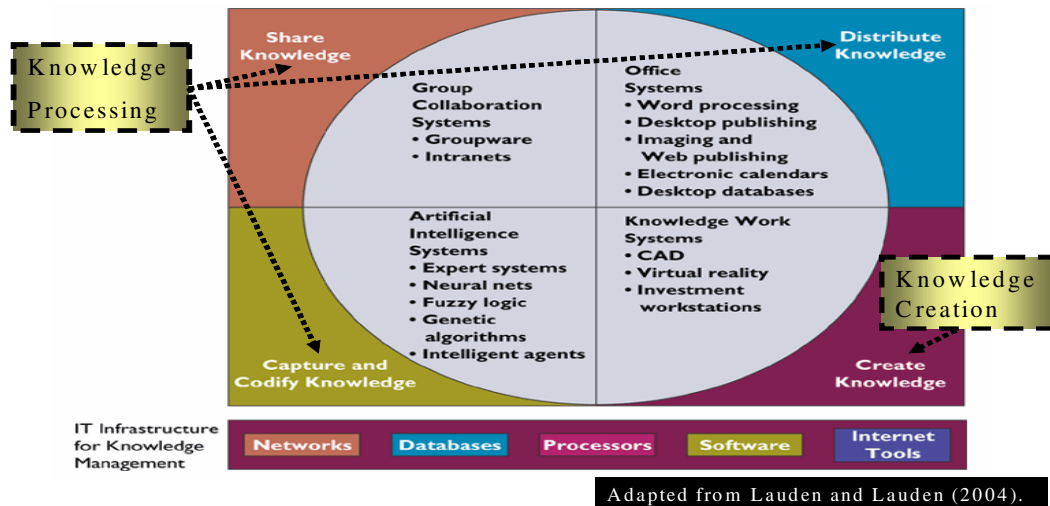


strategic questions²³. This line of reasoning is comparable to an earlier proposition by Taylor, Small and Tatalias (2000) that knowledge management can be seen from within a two-dimensional perspective. According to Taylor, Small and Tatalias (2000), the first dimension consists of activities that are critical to knowledge creation. Hence Taylor, Small and Tatalias propose that in order to create knowledge, organizations should embark on the following activities (or at a conceptual level – strategies): knowledge exchange, knowledge capture, knowledge re-use and knowledge internalisation.

In agreement with this, Laudon and Laudon (2004) argue that knowledge management strategies lead to the construction of information system applications specifically designed to help organizations to create, capture, distribute and apply knowledge and information. Although it might seem that there is considerable disagreement on the specific terms/phrases used to identify the managerial activities needed to institutionalise knowledge management strategies (strategies to explore, create, acquire, transfer, capture, codify, share, distribute, etc.), Laudon and Laudon (2004) argue that all these activities can be categorized as either addressing the creation of knowledge, or the processing of knowledge (refer to Figure 3.3).

²³Knowledge management strategies proposed by Von Krogh, Nonaka and Aben (2001:421) leveraging knowledge throughout the organization, expanding knowledge further based on existing expertise, appropriating knowledge from partners and other organizations, and developing complete new expertise by probing new technology or markets’.

Figure 3.3: Knowledge creation and knowledge processing



3.6 The Creation of knowledge domains

Von Krogh, Nonaka and Aben (2001) argue that in order to create and process knowledge, a company must first capture what it knows and does not know about its various functional and production areas (rather like the knowledge audit proposed by Snyman and Kruger, 2004). In order to achieve this, Von Krogh, Nonaka and Aben (2001:423) propose the creation of ‘knowledge domains’²⁴ - domains bound by the same ‘line (community) of practice’, where knowledge is facilitated in a structured way. According to Von Krogh, Nonaka and Aben (2001), the purpose of these domains is not only to bring key experts and practitioners together (in a workshop²⁵ scenario), but also to decide and share vocabulary and terminology, and most importantly also to identify gaps in knowledge.

²⁴**Knowledge Domain.** ‘A knowledge domain consists of relevant data, information, articulated knowledge, such as handbooks, manuals, or presentations, and a list of key people and groups with tacit knowledge based on long-term work experiences’ (Von Krogh, Nonaka and Aben, 2001:423).

²⁵**Knowledge Workshop.** ‘Organised to bring together key experts and practitioners from around the world. The knowledge workshop defines the Knowledge Domain to which the line (community) of practice participants contributes’ (Von Krogh, Nonaka and Aben, 2001:422).



Von Krogh, Nonaka and Aben (2001) emphasize that in order to set up these domains, not only must domains be identified, but senior business managers must also be appointed to champion each of these domains. Von Krogh, Nonaka and Aben (2001) stress that senior officers (domain champions) must ensure that key participants are identified – key players that can contribute to the success of the different domains. Once domains are set up, managers can contact the individual domains with queries relating to the expertise residing in that domain. In order to facilitate such information queries, Von Krogh, Nonaka and Aben (2001) propose that experts in each domain (among themselves) appoint a domain leader²⁶. The purpose of this domain leader is thus to facilitate the entry to knowledge contained in that specific domain. Von Krogh, Nonaka and Aben (2001:423) also propose that if there is insufficient knowledge on how to solve a particular problem (a knowledge gap) subgroups within the domain should be charged with: ‘the task of collecting data, information, and creating knowledge around how to solve the problem based on their existing work practice’. Von Krogh, Nonaka and Aben (2001:423) further argue that in order to enlarge the scope of knowledge in a domain: ‘other professionals must be invited to join the line of practice on a short to medium-term basis to help solve the problem’. After implementing the above-mentioned methodology at Unilever, Von Krogh, Nonaka and Aben (2001:424) came to the realisation that ‘On a personal side, members of the community (line) of practice learn, pick up small and large tricks of improving their own local manufacturing practice, and jointly develop a more refined language for analysing the manufacturing process’ and continue (Von Krogh, Nonaka and Aben, 2001:424) ‘normally, because the benefit to each of the participants of membership is direct and valuable, sharing knowledge within a knowledge domain is not necessarily considered a problem’. Finally, Von Krogh, Nonaka and Aben (2001:424) argue that: ‘In general a company has several such knowledge domains at its disposal, and thus has a choice of focusing on existing and new knowledge domains. First, you can decide to let knowledge develop from the existing knowledge domain, that is, increase the depth and/or scope of the knowledge. Second you can decide to create a new knowledge domain, that is, create new data, new information, and new tacit and explicit

²⁶Domain Leader. ‘This is not necessarily the most highly recognised expert in the field, but a *primus inter pares*, that co-ordinates and integrates the work of the people contributing to the domain’ (Von Krogh et al, 2001:423).



knowledge at the individual and collective levels, e.g. new community (line) of practice, with loose connections to existing knowledge domains'. According to Pearce and Robinson (2000), the formulation of strategy is primarily the responsibility of high-ranking business officers/managers. Depending on the way the organization is structured (functional or process-driven) these officers are known as functional/process heads, directors, or owners. It is the responsibility of these functional/process owners to ensure that the right information and knowledge is available when strategising. Arguably, the responsibility assigned to domain champions (as proposed by Von Krogh, Nonaka and Aben, 2001:422) to: 'capture what it knows and does not know about its various functional and production areas' is exactly the same responsibility Pearce and Robinson propose should be assigned to functional/process owners, in order to strategise.

3.7 Summary

In the previous chapter it was argued that once the role between strategy and knowledge is defined, then other aspects of strategic management such as resource allocation, organizational design, product development and market segmentation can be configured to bolster knowledge strengths, reduce knowledge weaknesses, etc. Arguing from within this perspective, this chapter not only emphasized the strategic link between knowledge management and strategy, but also focused on determining if there are any issues/models/perspectives/strategies available from within a knowledge management perspective, to guide strategists in the quest to manage knowledge effectively.

By meticulously analysing literature with regard to determining the best way to manage knowledge, the author found that organizations should institute a culture conducive to knowledge within the organization before any endeavours in knowledge management can commence. It was found that only once principles and policy promoting the institution of a knowledge culture are in place, can strategies be formulated to manage knowledge. As a point of departure in formulating these strategies, it was established that emphasis should be placed on determining where knowledge sources are situated, and what specifically constitutes these resources. It is argued that as soon as the organization's knowledge profile is known, this profile should be brought into context with strategic



questions regarding organizational strong points, weak points, opportunities and threats. Only after sufficient knowledge is available to answer strategic questions (e.g. when strategic knowledge is strong), can knowledge management endeavours start to focus on further exploration and even exploitation of the power vested in knowledge. Central to all of these strategies are the knowledge management processes of exploring, creating, acquiring, transferring, capturing, codifying, sharing, distributing, etc.

However, even though the idea of creating a knowledge culture might be a step in the right direction, and even if policies and principles are put in place to set the stage for the creation of formal knowledge management endeavours, the latter cannot guarantee that knowledge will lead to organizational growth, profitability and sustainability. It would seem that for knowledge to have real value, all knowledge management endeavours must be brought into relation with the capabilities and competencies present within the company, and also the strategic direction of the company, i.e. knowledge must be managed in a structured and formal manner. In the next chapter this idea is expanded upon and explored in the context of ways to achieve maturity and implement knowledge management successfully, efficiently and effectively.



CHAPTER 4: KNOWLEDGE AND KNOWLEDGE MANAGEMENT MATURITY

4.1 Introduction

By analyzing all the different perspectives with regard to knowledge management from a strategic business point of view, as well as from a knowledge management point of view, it became clear that not only should knowledge be governed by strategy before detailed knowledge management plans can be made, but more importantly that sound knowledge management practice should be based on certain issues, policies, and strategies. Any criteria proposed for assessing the effectiveness and efficiency of knowledge management, should be governed by these entities. This chapter builds on this notion and argues that the criteria used to formulate knowledge management practice, can also serve as a checklist to determine the knowledge management maturity of an organization.

4.1.1 Aim

The aim of this chapter is to propose an evolutionary methodology with regard to the progression of knowledge management in an organizational setting. The methodology followed will not only be capable of incorporating the major issues, policies and strategies involved in knowledge management formulation, but will also incorporate ICT and Information Management into knowledge management.

4.1.2 Scope

In order to address the above-mentioned aim, emphasis is placed on:

- The evolution of knowledge management
- Criteria to determine the organization's knowledge management orientation
- The formulation of a holistic ICT and knowledge management maturity model



4.2 The Evolution of knowledge management

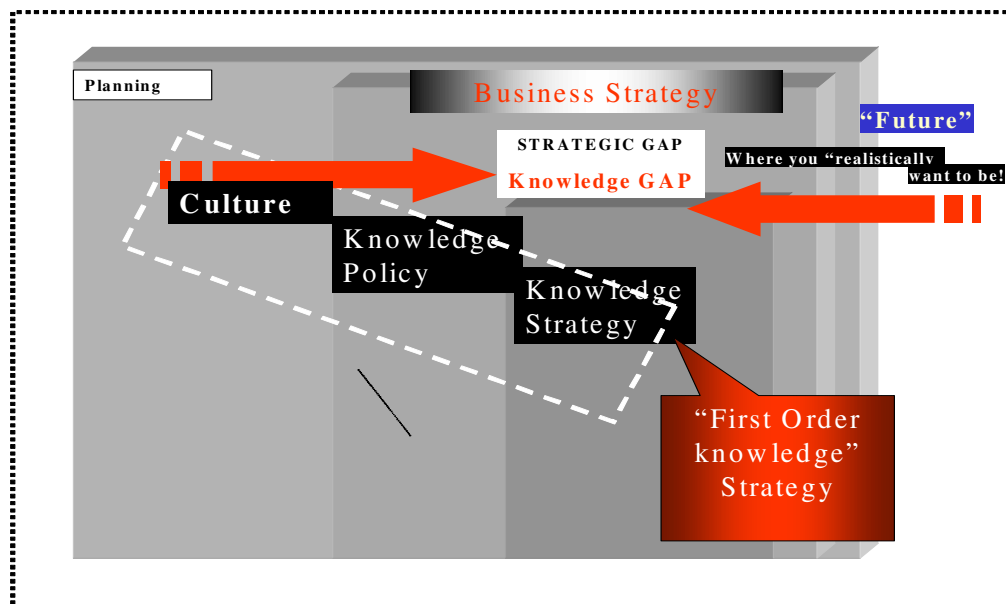
According to Gallager and Hazlett (2004:04), ‘there is much agreement in literature that managing knowledge effectively requires a time-consuming, multidimensional perspective’. In the previous chapter (sections 3.4 and 3.5), it was demonstrated that the institutionalization of knowledge management is an evolutionary process that takes place over time, consisting of different phases. These phases correlate closely to the managerial steps of planning, organizing, leading and control. Certain checks and balances can be built into this methodology²⁷, to act as guidelines in determining the extent to which knowledge management is successfully being institutionalized in the organization. As argued in the previous chapter, (section 3.4) to start this evolutionary process, i.e. the planning phase (Refer to Figure 4.1), endeavours in knowledge management should commence with identifying, determining and deciding on knowledge issues²⁸ that render possible or influence knowledge creation activities. Von Krogh, Nonaka and Aben (2001) are of the opinion that these issues should be unique to every organization, i.e. criteria to guide the knowledge management should be scrutinized and adapted to suit the specific needs of the organization. However, it should be noted that in the previous chapter (section 3.4), it was argued that certain knowledge management issues, due to their recurrence in literature, are deemed to be of such importance that they could (should) be used as a baseline in the attempt to determine applicability with regard to the unique circumstances surrounding knowledge management in an organizational setting.

²⁷If strategy and knowledge are interdependent, all the issues, policies, and strategies knowledge management is supposed to be built on, should form the basis for developing measurement criteria to determine the efficiency and effectiveness of knowledge management.

²⁸ Principles, issues, success factors, elements proposed by Bater (1999), Zack (1999, 2001), Mitre cited in Taylor Small and Tattalias (2000), Von Krogh, Nonaka and Aben (2001), Gartner cited in Logan (2001), and Snyman and Kruger (2004), and/or any other knowledge management issues as proposed in literature, not specifically dealt with in this study.

In referring to generic knowledge management issues, Chait (1999) proposes that due to similarities between some of these issues, different issues can be classified into different domains. Chait (1999) therefore maintains that knowledge management requires the concurrent management of four domains, e.g. Culture, Content, Process and Infrastructure.

Figure 4.1: Planning to manage knowledge as a strategic corporate resource



The argument followed by Chait (1999) is similar to arguments put forward by Gallager and Hazlett (2004) and Kazimi, Dasgupta, and Natarajan (2004). Gallager and Hazlett (2004) argue that in order to manage knowledge in an effective and efficient manner, attention needs to be devoted to people, culture, organizational structure and information technology. In similar fashion, Kazimi, Dasgupta and Natarajan (2004:03) propose that: ‘every organization that needs to leverage its intellectual assets is dealing with knowledge as an asset; communities and cultures as the focal areas; and processes as the medium of institutionalizing knowledge management’. Adding to this line of reasoning, Kochikar (2004) is of the opinion that although there is widespread recognition of the need to leverage the power of knowledge, this notion is to a great extent hampered by the



realization that such a path involves significant change, especially with regard to people, process and technology. Kochikar (2004), however, warns that such change cannot be achieved in one great leap, and thus proposes that a staggered approach to the institutionalization of knowledge management be followed. Similarly, Gallager and Hazlett (2004:08) emphasize that knowledge management cannot be left to 'grow and develop on its own', and argue that the highest authority in the organization should therefore express commitment to managing knowledge.

As argued in the previous chapter, (section 3.4), Davenport (1998), Taylor, Small and Tattalias (2000), Tiwana (2000), Logan (2001), and Laudon and Laudon (2004), all assert that as a starting point in institutionalizing knowledge management, it is imperative that a knowledge management department, and knowledge management team²⁹ be appointed. According to Davenport (1998), a knowledge management team must be headed by a senior manager, and be manned by knowledge practitioners. In agreement with these statements, Snyman and Kruger (2004) argue that in the effort to encapsulate knowledge issues, the head of the knowledge management function (in collaboration with high-ranking business officers) should formulate a vision³⁰ and policy³¹ to govern the effective use of knowledge. In a similar manner, Gallager and Hazlett (2004:08) argue that: 'Knowledge sharing begins with vision and direction from upper management'.

As argued in the previous chapter, (section 3.5), after issues are decided upon, and after policy is put in place to govern the effective use of knowledge, Zack (1999), and Henczel (2000) as well as Snyman and Kruger (2004), maintain that emphasis should be placed on determining where knowledge sources are situated. This requires that organizations know

²⁹ Knowledge management team. In order to design an effective knowledge management team, Tiwana (2000:106) argues: 'organizations must identify key stakeholders both within and outside the company and identify sources of expertise that is needed to successfully design, build, and deploy the system while balancing the technical and managerial requirements'.

³⁰ Snyman and Kruger (2004), are of the opinion that in order to focus all knowledge management efforts, there should be a distinct expression of the future state (knowledge vision) of knowledge within the organization.

³¹ In order to focus organizational efforts with regard to achieving the knowledge vision, Snyman and Kruger (2004) feel that strategists should formulate high-order guidelines (knowledge management policy) on how the organization is going to manage, secure, and protect knowledge as a strategic resource; and how the organization's knowledge repository should be constructed.



what their knowledge resources are; why certain knowledge can be considered as being strategic; as well as what opportunities are presented by these resources. In agreement with this statement, Gallagher and Hazlett (2004:07) state that: ‘any organization attempting to implement knowledge management must first understand its current structure and processes, and also what knowledge is required to make those processes work’. Gallagher and Hazlett (2004:06) argue that ‘such a process-orientated view’ is synonymous with ideas proposed by Coen, cited in Scheraga (1998), De Long and Miller (1997) and Carnelley, cited in Romberg (1998), with regard to conducting a knowledge audit to establish where the gaps lie in knowledge process provision. Building on the works of Seeman (1996) and Martiny (1998), Gallagher and Hazlett (2004:06) therefore propose that a knowledge map should be constructed to guide organizations in determining ‘what knowledge is important and where it can be found’. In similar fashion, Henczel (2000) (as argued in section 3.5), asserts that three audits are needed to move an organization from information management to knowledge management, and maintains that the first step (in developing knowledge management strategies) is to identify where knowledge exists and where it is needed to support decisions and actions. According to Snyman and Kruger (2004), determining the current knowledge management structure should therefore not only review the way in which data, information and knowledge flow through the different knowledge domains and the organization as a whole, but should also assess whether or not the manner in which data, information and knowledge are captured, exchanged and reused, is in accordance with set policy. These authors are of the opinion that emphasis should be placed on the quantity and the quality of knowledge resources, both implicit and explicit, and also the strengths and weaknesses of the organization’s existing knowledge and knowledge management structure.

As argued in the previous chapter, (section 3.5), Zack (1999), Earl(2001), and Snyman and Kruger (2004) are all in agreement that as soon as the organization’s knowledge, and existing knowledge management profile is known, this profile should be brought into relation with strategic questions regarding organizational strong points, weak points, opportunities and threats. Zack (1999), argues that as a starting point to bridge the ‘gap’ between current knowledge and the knowledge needed (to base strategy formulation on),

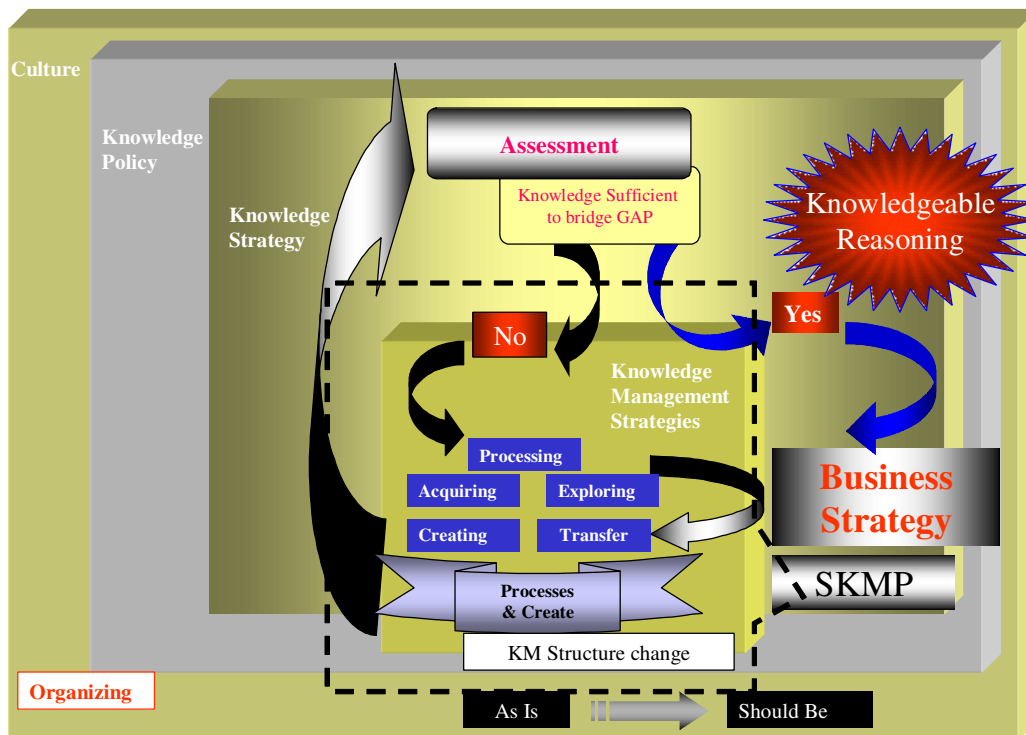


a knowledge strategy should be formulated. Arguably this ‘first-order’ knowledge strategy is designed specifically to answer strategic questions, and as such relies heavily on competitive intelligence and internal knowledge retrieval systems. As soon as enough knowledge is available to enable strategists to draw a well-informed synthesis between organizational strong points, weak points, opportunities and threats, any further knowledge management endeavour should become part and parcel of the normal business strategy formulation process, and as such should be governed by the future direction and goals of the organization. After this point, any further investment in knowledge management should be assessed according to sound economic principles, i.e. any further investment in knowledge management should be judged according to its ability to lead to organizational growth, profitability and sustainability. To illustrate this point: during the formulation of knowledge strategies, if it is found that the current knowledge management ‘As Is’ profile is insufficient, and/or if strategists (functional owners) point out that ‘new and more’ knowledge and intellectual capital are needed in order to institutionalize future business strategies, this possibly necessitates changes to the organization’s ICT infrastructure, knowledge repository (repositories), knowledge management structure, and even knowledge culture (refer to Figure 4.2). In agreement with this, Zack (1999) argues that in order to successfully transmogrify the ‘As is’ knowledge management structure into a more efficient and effective structure, the organization can either leverage the power of existing internal or external knowledge resources, or increase knowledge in a particular area, i.e. focus on further exploring the power vested in knowledge. Von Krogh, Nonaka, and Aben (2001) argue that this constitutes the formulation of knowledge management strategies:

- to leverage knowledge throughout the organization (within and between knowledge domains),
- to cultivate knowledge from existing expertise,
- to extract knowledge from partners and other organizations, and
- to develop new expertise by probing new technology or markets.

In relating these strategies to the institutionalization of knowledge issues, Nicolas (2004) argues that the characteristics of these strategies will be of a technical, personal, or social nature.

Figure 4.2: Changing the knowledge management structure



After strategies are decided upon, Snyman and Kruger (2004:16) maintain that: ‘in order to implement these (knowledge management) strategies, hierarchies of plans must be formulated’. Snyman and Kruger (2004:16) therefore propose the formulation of a Strategic Knowledge Management Plan (SKMP). These authors are of the opinion that the formulation of such a plan should be a collaborative process of mutual agreement between the organization’s different functional owners (strategists), and as such should ‘typically contain a set of longer-range goals that document movement towards the knowledge vision and knowledge architecture and the associated major initiatives that must be undertaken to achieve these goals’.



After formulating a SKMP, Snyman and Kruger (2004) argue that the initiatives identified in such a plan should be translated into a set of more detailed knowledge management projects with precise, expected results, due dates, priorities and responsibilities. In agreement with authors such as Zack (1999), Von Krogh, Nonaka, and Aben (2001), and Laudon and Laudon (2004), Snyman and Kruger (2004) assert that central to all of these strategies, plans and projects are knowledge management processes of exploring, creating, acquiring, capturing, codifying, organizing, transferring, sharing, using and distributing.

4.3 Criteria to determine the organization's knowledge management orientation

Darroch and McNaughton (2002), drawing heavily on knowledge management literature (using the Kohli Jaworski instrument as a starting point), developed a scale to measure a firm's knowledge management orientation. The scale was broken down into three components each consisting of a number of factors³² explaining these components. The following is a brief extract from the Darroch and McNaughton (2002) scale:

Component 1: Knowledge acquisition

- Valuing employees' attitudes and opinions and encouraging employees to upgrade their skills.
- Having a well-developed financial reporting system.
- Being market-focused by actively obtaining customer and industry information.
- Being sensitive to information about changes in the marketplace.
- Employing and retaining a large number of people trained in science, engineering or mathematics (having a science and technology human capital profile).
- Working in partnership with international customers.
- Getting information from market surveys.

Component 2: Knowledge dissemination construct

³²Darroch and McNaughton's scale for measuring knowledge management orientation. 'Three knowledge management components that include 16 [sic – must be 17] factors and represent a total of 59 variables' (Darroch, and McNaughton, 2002:210).



- Readily disseminating market information around the organization.
- Disseminating knowledge on the job.
- Using technology such as teleconferencing, videoconferencing and groupware to facilitate communication.
- Preferring written communication to disseminate knowledge.
- Using specific techniques such as quality circles, mentoring and coaching and written case notes.

Component 3: Responsiveness to knowledge

- Responding to knowledge about customers.
- Responding to technology about competitors.
- Responding to knowledge about technology.
- Having a well-developed marketing function.
- Being flexible and opportunistic.

At first sight the ideas proposed by Darroch and McNaughton (2002) seem different from the line of reasoning followed thus far with regard to successfully institutionalizing knowledge management within an organization. However, if these ideas are brought into perspective with one another, the following findings can be made. Responding to knowledge about customers, competitors, technology, the market, etc., (as proposed by Darroch and McNaughton, 2002), relates to the strategic principle of assessing opportunities and threats in the external environment³³. Similarly, the dissemination of knowledge (the second component identified by Darroch and McNaughton) essentially relates to building or rather enhancing the organization's core knowledge competencies and capabilities, e.g. knowledge management strategies. In addition, knowledge management components that relate to knowledge acquisition, address not only strategic issues, but also issues like those proposed by Davenport (1998), Zack (1999), Taylor Small and Tattalias (2000), Logan (2001) and Snyman and Kruger (2004), as identified in

³³ Similar in reasoning to the notions of Porter (1980), Zack (1999), Pearce and Robinson (2000), Von Krogh, Nonaka, and Aben (2001) (2001), Darroch and McNaughton (2002), and Snyman and Kruger (2004), in arguing that knowledge of certain external forces is crucial in the formulation of business and knowledge management strategies.



the previous chapter (section 3.4). In placing these ideas within a timeframe, insight is gained with regard to what specifically needs to be addressed in order to successfully manage knowledge. Darroch and McNaughton (2002) address the same strategic principles, but rather than focusing on an evolutionary methodology (progression along the line of descent through the history of the field), these authors only assess criteria to determine the organization's orientation towards knowledge management. Without doubt the model proposed by Darroch and McNaughton (2002) is an extremely useful tool in the attempt to determine the knowledge management orientation of organizations. However, it is argued that in assessing how successfully knowledge management is institutionalised within an organization, cognisance should also be taken of the knowledge management maturity of the organization.

4.4 Formulation of a holistic knowledge management maturity model

Like the line of reasoning followed thus far, Klimko (2001) argues that maturity modelling is an evolutionary and a generic approach describing the development of an entity over time, progressing through different levels of maturity towards a usually idealistic ultimate state. Referring to the Capacity Maturity Model³⁴ (SEI-CMM) developed in the 1990s for the software industry, Mark, Curtis, Chrissis and Webber (1993) maintain that maturity is not only a measure of effectiveness, but also the extent to which a specific process is explicitly defined, managed, measured and controlled. According to Mark, Curtis, Chrissis and Webber (1993), maturity not only implies a potential for growth in capability, but also focuses on richness and consistency with regard to execution. Of interest is the fact that the definition proposed by Mark, Curtis, Chrissis and Webber (1993) correlates closely to the managerial steps of planning, leading, organizing and control.

³⁴Capacity Maturity Model developed by the Software Engineering Institute at Carnegie Mellon University.



In a similar manner Gallagher and Hazlett (2004:12) posit that most maturity models³⁵ are incremental in nature, representing an attempt to interpret a succession of positions/phases/stages with regard to growth and maturity, all with the ultimate aim of improving processes and business performance. Gallagher and Hazlett (2004:12), however, criticize current maturity models, arguing that they either devote too much time to technological issues or are not focused enough, providing little practical help, and/or not enough ‘emphasis is placed upon culture and other management issues’. As an example, Gallagher and Hazlett (2004) point out that the maturity levels of the Siemens Knowledge Management Maturity Model (KMMM) are of an extremely technical nature, possibly because the model was derived from methodology applicable to the software industry’s SEI-CMM model.

In an attempt to integrate and further develop current theory, Gallagher and Hazlett (2004) therefore propose a knowledge management maturity model (KM3), consisting of four stages; Aware, Managed, Enabled and Optimised. Gallagher and Hazlett (2004:11) are of the opinion that ‘in contrast to other maturity models, relating specifically to information system usage’ their model explicitly also considers the human dimension and its inter-connectedness with technology and infrastructure. Similarly, Kochikar (2004) proposes a Knowledge Management Maturity Model (KMM Model) characterized by certain observable capabilities along each of the major lines of People, Process and Technology. However, because both of these maturity models are also derived from the Software Engineering Institute’s Capability Maturity Model, both the KM3 and the KMM still in a sense closely resemble the Siemens (2004) KMMM model, especially with regard to the progression of stages³⁶. It should be noted, however, that even though there are a great many similarities between these models, especially with regard to the progression of stages, there is also major disagreement concerning what specifically

³⁵“SEI’s Capacity Maturity Model for software development – Paulk et al (1993), KPMG’s Knowledge Management Framework Assessment Exercise – KPMG (1999), KPMG’s characterisation of the Knowledge Journey – Parlby (1999a and b), Microsoft’s IT Adviser for Knowledge Management – Microsoft (1999), and Crosby’s ‘Quality Management Maturity Grid’ – Crosby (1978).

Source: Gallagher and Hazlett (2004:12)

³⁶ KMMM proposes five evolutionary stages: Initial, Repeat, Define, Manage and Optimise, the KM3 model proposes four stages; Aware, Managed, Enabled, and Optimised, and like KMMM the KMM Model also proposes five evolutionary phases: Default, Reactive, Aware, Convinced and Shared. .



constitutes areas of importance within these stages. As an example, in the Capability Maturity Model there are 18 key process areas, in the KMM Model there are 15 Key Result Areas, and the KMMM suggests that there are only eight areas of importance. In essence the KM3 model simplifies key areas, and suggests that only three components are of major significance. Of interest is the fact that due to all of these knowledge management maturity models being based on the Software Engineering Institute's Capability Maturity Model, they all closely resemble the maturity regression of Initial, Aware, Managed and Optimised as proposed by Hirvonen (2004), with regard to ICT maturity.

In contrast to the above-mentioned authors, Kazimi, Dasgupta and Natarajan (2004) question whether knowledge management maturity should be based on the Software Engineering Institute's Capability Maturity Model at all. These authors argue that due to working with abstract components (knowledge, culture, processes or communities) there is much disillusionment about knowledge management that first needs to be addressed. Rather like Gallagher and Hazlett (2004), Kazimi, Dasgupta and Natarajan (2004) maintain that knowledge management maturity models should not only focus on technological issues, but also on dispelling disillusionment about knowledge management and as such make organizations aware of:

- What they want to transform into – Maturity Framework.
- How to create visibility from an invisible asset like knowledge – Maturity Plateaux.
- What efforts need to be made and in which directions – Maturity Dimensions.
- How to keep focused on business strategy and profit from these efforts – Maturity Drivers.

Kazimi, Dasgupta and Natarajan (2004) are therefore of the opinion that current knowledge management maturity models, which are derived from the SEI-CM Model and/or are based on pre-defined business dimensions to chart out maturity, unfortunately only address a few of the above-mentioned issues, and therefore cannot fully address the



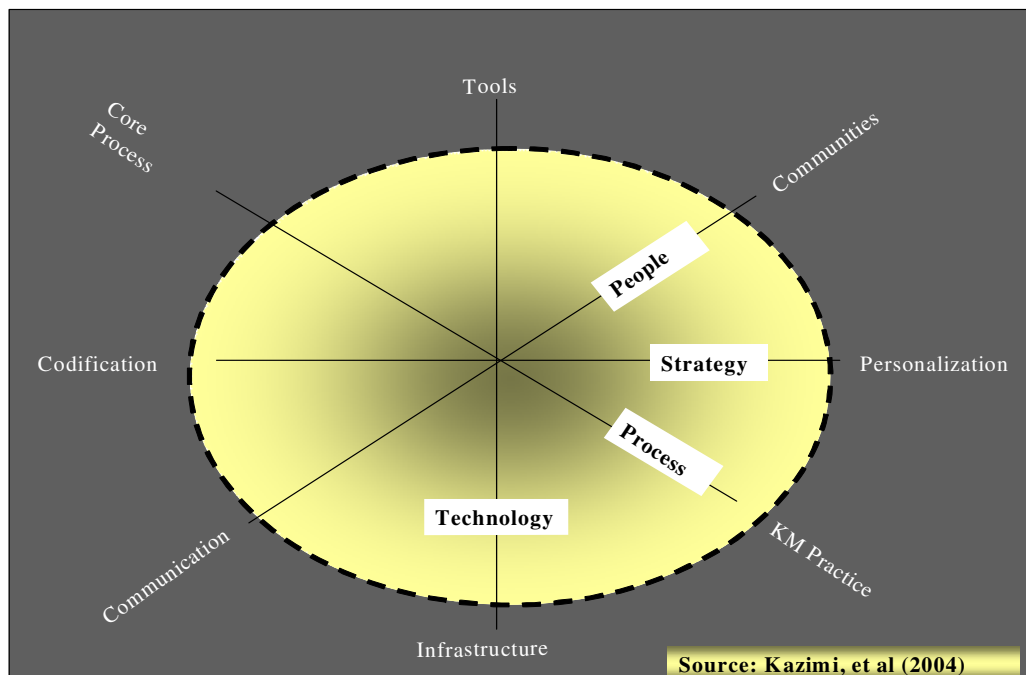
subject of knowledge maturity. In emphasising this point, Kazimi, Dasgupta and Natarajan (2004:04) assert that these models are based on a 'project environment' and as such focus on 'a set of symptoms indicating the adoption of stable, standardized processes', e.g. processes to create, capture, store, retrieve and disseminate knowledge within the organization. Kazimi, Dasgupta and Natarajan (2004:04) argue that even though some of the models derived from SEI-CMM methodology (arguably also the model Gallagher and Hazlett, 2004 propose) led to the identification of the pillars (knowledge issues) that knowledge management is based upon (people, process, technology and strategy – refer to Figure 4.3), and even though these models enabled organizations to understand that knowledge management is not just another technological solution, there are also other pillars (leadership, culture and communities) that cannot be scaled down and converted into processes. Kazimi, Dasgupta and Natarajan (2004:04) are therefore of the opinion that owing to limitations with regard to addressing all knowledge issues, and/or due to not all organizations being categorized according to projects, models based on the SEI-CMM methodology are not of a sufficiently generic nature. They question the extent to which progress across these models really relates to knowledge management maturity. Kazimi, Dasgupta and Natarajan (2004:05), therefore question whether organizations represented by a full circle of maximum radius (maximum growth along each dimension) are indeed the most mature knowledge organizations. Kazimi, Dasgupta and Natarajan (2004:05) thus maintain that: 'graphical representation (of these issues) is (no more than) an effective tool for conducting a knowledge audit, i.e. understanding an organization's readiness for knowledge management and identifying thrust areas (knowledge issues)'.

The arguments advanced by Kazimi, Dasgupta and Natarajan (2004) appear to be similar to the proposition made earlier that as a point of departure, organizations should first identify knowledge issues, formulate policy to guide the institutionalisation of these issues, conduct an audit to determine where knowledge resources are situated, and in the attempt to address shortcomings, relate the management of knowledge (as a strategic resource) to strategy formulation, i.e. not only formulate strategy to utilize knowledge as a strategic resource, but also use the strategy formulation process to guide the



institutionalisation of knowledge management strategies, planning and processes. Further underlining the suggestion that the methodology proposed by Kazimi, Dasgupta and Natarajan (2004) is similar to the above-mentioned methodology, Kazimi, Dasgupta and Natarajan (2004:05) go on to say that: ‘What determines an organization’s knowledge maturity is how well it can execute its business strategy by capitalizing on its knowledge strengths and opportunities and by mitigating the risks of its knowledge weaknesses and threats’, or stated differently (Kazimi, Dasgupta and Natarajan, 2004:06), ‘the ability of an organization to create knowledge and provide long-term business advantage will determine its maturity’. Kazimi, Dasgupta and Natarajan (2004) therefore propose that a new model of knowledge management maturity should be formulated, a model not only capable of addressing the objectives and issues of importance with regard to knowledge management, but also a model capable of addressing limitations present in today’s models. Kazimi, Dasgupta and Natarajan (2004:06) therefore opine that this ‘may well be the beginning of a new step by step Knowledge Management methodology which will blow away many of the clouds that come in the way of implementing and enabling organizations to move towards Knowledge Maturity’.

Figure 4.3: Representation of knowledge management dimensions



Although the above-mentioned authors differ with regard to what specifically constitutes knowledge management issues, and even though there are conflicting opinions regarding ICT's involvement in knowledge management, there is consensus that technology, and especially ICT, can be considered a primary issue (and possibly a primary domain) in knowledge management. In order to illustrate this point, Gurteen (1998) argues that ICT is the channel for representing, organizing and deploying knowledge. In agreement with this, Scheraga (1998) feels that without having suitable technology in place, organizations will never be able to fully exploit the value of knowledge. In a similar fashion Henczel (2000) emphasizes that good information management is a prerequisite for knowledge management, and adds that no endeavours in knowledge management should be inaugurated unless efficient and effective information and communication technology is available to support them³⁷.

³⁷ Arguably, the statement by Henczel refers to knowledge management in a relatively mature state. Surely, information and knowledge can be management via manual systems; however it is the author's opinion that primarily due to technical restraints, such endeavours would place an extreme limitation on the growth potential of knowledge management in particular.



These statements are also in agreement with statements made by Earl (1994), Chait (1999), and Gallagher and Hazlett (2004) emphasizing that knowledge management requires a combination of technical and social interaction. What specifically constitutes efficient and effective ICT is a debatable issue. Hirvonen (2004) argues that organizations are at different levels of maturity in respect of ICT management, some in a chaotic situation, whilst others, due to proven procedures and practice, are capable of optimizing information systems, and information system investments. As a tool to assist with strategic ICT management, Weill and Broadbent (1998) and Ward and Peppard (2002) propose the use of application portfolios³⁸, i.e. ICT applications and technologies classified into different categories depending on their contribution to business success. In proposing tools to assist in determining the organizational maturity for information system investment planning, Hirvonen (2004), building on the works of Weill and Broadbent (1998), and Ward and Peppard (2002), proposes four levels of ICT maturity, i.e. Initial, Aware, Managed and Optimized maturity. Hirvonen (2004) is of the opinion that it is only when organizational systems are known, i.e. in Phase Three (managed) of ICT maturity that organizations start to benefit from using application portfolio models with regard to strategic ICT management³⁹. Hirvonen (2004) therefore argues that system development should be planned for and business requirements must become an important part of investment decision-making.

Since most ICT and knowledge management maturity models are derived from the Software Engineering Institute's Capability Maturity Model software and since many authors agree that knowledge management is dependent on ICT, it should be possible to derive a holistic ICT knowledge management maturity model by superimposing these models upon one another. This, however, would mean accepting that knowledge management is an extension of, or is part and parcel of ICT management, or vice versa, exactly the trap authors such as Kazimi, et al (2004), and Gallagher and Hazlett (2004) warn us against. However, it is my belief that in determining the best way to

³⁸ Application Portfolios. 'An application portfolio is needed to evaluate an IT system's relation to business success and answer strategic questions such as how much should be invested in new systems and technology' (Hirvonen, 2004:03).



institutionalise knowledge management, this avenue should be explored, with the proviso that cognisance should also be taken of other knowledge management issues, which also need to be addressed. At first glance such a proposition might seem far-fetched, but considering that the progression of knowledge (as a strategic resource) follows the methodology of transition of data into information, into knowledge, this proposition might not be as preposterous as it seems. It seems logical that the management of data, information, and knowledge should follow the same line of reasoning. To emphasise this close correlation between knowledge management and ICT management, as in the models proposed by Gallagher and Hazlett (2004), and Kochikar (2004), Ross, Breath and Goodhue (1996) propose that three ICT assets need to be managed well in order for ICT to play a strategic role: A Technology Asset, a Human Asset and a Relationship Asset, areas all deemed to be of great importance to successful knowledge management (refer to knowledge issues identified in section 3.4). Of interest is the fact that the evolution of ICT systems does indeed seem to follow this methodology. Applegate, McFarlen and McKenney (1999), building on the work of Zwass (1998), argue that the role that information systems play in organizations, evolves over time. According to these authors the stages in which any organization finds itself with regard to ICT can be divided into four areas:

- Operational support. Primarily shifting data in support of business operations.
- Support for management and knowledge work. With the aid of personal computers, information systems go beyond the support of operations to support management and knowledge work as well.
- Support of business transformation and competition. Organizations rely on information systems to achieve and sustain the competitive advantage. Decision support and strategic information systems directly support and even render knowledgeable decision-making and group decision-making possible.

³⁹ Hirvonen (2004) is of the opinion that for preliminary phases simple system maps and lists can be used to clarify ICT issues.



- Ubiquitous computing. ICT systems extend the influence of the organization beyond the borders of the organization. Systems are aimed at sharing knowledge and expertise with all stakeholders in an extended value chain.

In essence, after looking carefully at this evolutionary process it becomes apparent that ICT systems being developed to suit the needs of latter stages, all tend to render knowledge management possible, emphasising an increased interdependency between ICT management and knowledge management, especially with regard to increased maturity. In agreement with this, Kazimi, Dasgupta and Natarajan (2004:01) argue that ‘today there is a growing realization that organizations can attain maturity in knowledge management only through a healthy coexistence of technology, processes and people, thereby paving the way for knowledge management successes in the years to come’. Possibly this phenomenon emphasises that knowledge management and ICT management have in the past mistakenly been managed as separate managerial entities. A word of caution: In suggesting that knowledge management and ICT management have in the past mistakenly been managed as separate managerial entities, one is in no way implying that ICT management, Information management and Knowledge management are one and the same thing, nor is it the intention of the author to propose that Information Management = ICT. ICT is no more than a vehicle/tool to support both Information and Knowledge Management. One is also not suggesting that Information Management = Knowledge Management. Information Management deals with the management of information (as opposed to knowledge) and is at best only capable of addressing explicit knowledge. Refer to the definition of Information Management offered by Boon (1990:320): ‘Information management deals with management of resources such as information media, people, information systems and physical facilities that are required if information as contents is to play a role on the corporate strategic, organizational, operational and personal levels’. However, the author stands firm in the belief that both effective ICT and Information Management are enablers of effective Knowledge Management.



Care should therefore be taken not to fall into the trap and try to replace 'Information' or 'Data' with the word 'Knowledge' and presume that ICT systems that tend to support these entities can under all circumstances support, or be adapted to support knowledge or even information management. What is being proposed is similar to a proposition by Kazimi, Dasgupta and Natarajan (2004). These authors argue that due to subtle differences between data, information and knowledge, the tools to manage these entities will in most cases not be the same. However, it is the opinion of these authors that the underlying technology remains the same. What is being proposed is that in the organizational quest to continue growing, there is an evolutionary process of converting data into information and then into knowledge, with knowledge being the ultimate strategic resource. In all of these endeavours ICT is the vehicle, or rather the technology, that can supply tools to efficiently and effectively manage data, information and knowledge. By looking at the evolution of ICT management, information management and knowledge management, it is easy to understand why discrepancies arose. In the early stages of these managerial entities, it is not obvious that there is a correlation between shifting data, information and sharing knowledge. Only later is it revealed that by shifting data and managing information, knowledge can be gained, knowledge that is crucial to decision making. When organizations reach the later stages of both ICT management, information management and knowledge management, it becomes obvious that the main thrust shifts towards an effort to supply sufficient information to decision makers, to enable them to formulate winning strategies⁴⁰. Ironically Applegate, McFarlen and McKenney (1999) (referring to ICT management) predicted that as soon as ICT becomes mature within an organization, ICT systems evolution tends first to start supporting the sharing of data, then information and finally knowledge beyond the borders of the organization. In similar vein, Gallagher and Hazlett (2004) propose that after optimisation of knowledge management within the organization, the next step should take one along a path towards knowledge management integration - a path towards sharing knowledge beyond the borders of the organization. Of interest is the fact that Kochikar (2004) came to basically the same conclusion, arguing that the knowledge

⁴⁰ According to Gallagher and Hazlett (2004:13) knowledge management phases range from: 'no awareness of knowledge management to a complete and focused knowledge strategy that is tightly coupled to the business strategy and ultimately results in improved business performance'.

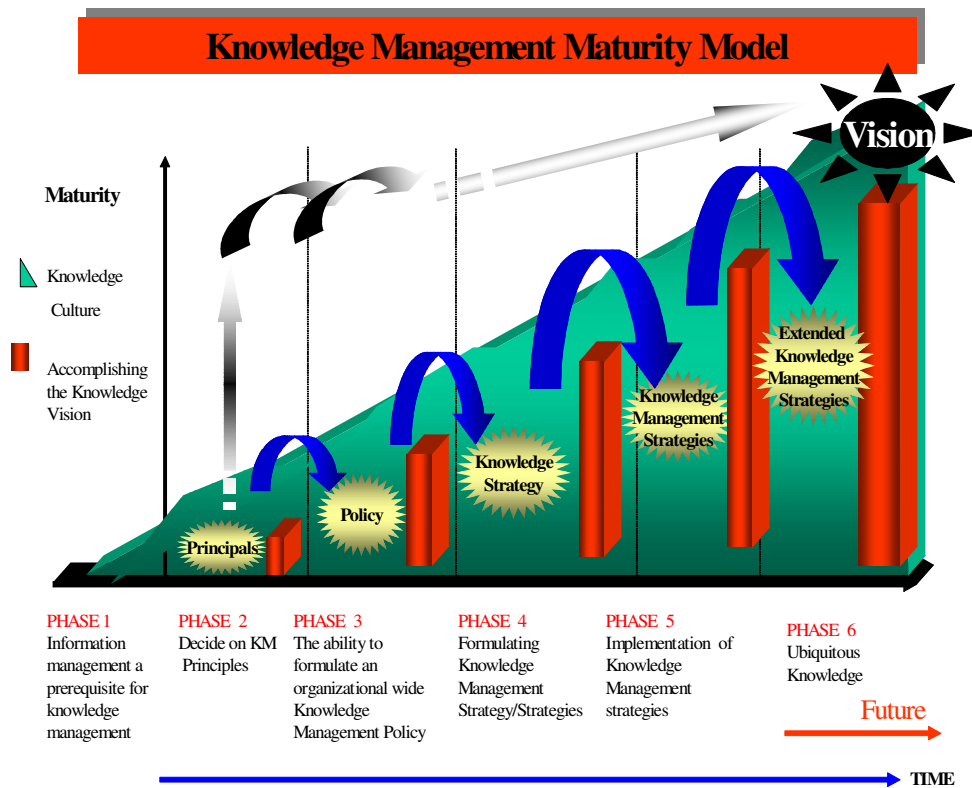


life cycle not only consists of the stages of knowledge acquisition, sharing/dissemination, and reuse, but also that there is a fourth dimension – a dimension that only comes into play in the later phases of knowledge management maturity. According to Kochikar (2004), this fourth (next) dimension in the knowledge life cycle is Virtual Teamwork, e.g. the ability to support knowledge transfer across geographical distances, even beyond the organization's boundaries.

Referring to the Knowledge Management Model proposed earlier, it is becoming clearer and clearer that only after the filtering effect of strategy on knowledgeable reasoning is determined (what the organization needs to know in order to strategise), should resources be allocated to formulate knowledge management strategies. This argument is in agreement with a proposition made by Kazimi, Dasgupta and Natarajan (2004). These authors emphasize that in order to manage knowledge successfully, organizations first need to establish knowledge as a strategic asset and then utilize such knowledge to provide strategic leverage in terms of competitive advantage, increased market share and increased intellectual capital. This means that for knowledge to be sufficiently managed, organizations must progress to a point where they are able to manage both ICT, information and knowledge simultaneously. Therefore it is proposed that by building checks and balances into the evolutionary path of ICT, information and knowledge management⁴¹, a holistic knowledge management maturity model can be formulated. The next section is a short explanation of the proposed model (refer to Figure 4.4).

⁴¹ Presenting knowledge management as an evolutionary process consisting of several distinct phases.

Figure 4.4: Knowledge management maturity model



4.4.1 Phase 1: ICT and Information management enablers for knowledge management

Before any endeavour in knowledge management commences, a certain amount of ICT and information management (as enablers of effective knowledge management) needs to be present in the organization (vide Boon, 1990, Gurteen, 1998, Gallagher and Hazlett, 2004). According to Kazimi, Dasgupta and Natarajan (2004:06): ‘At a basic operational level, knowledge that helps an organization to conduct its day-to-day operations is necessary, without which work would grind to a halt’. The mere fact that organizations exist and survive indicates that a certain amount of knowledge is available within the organization. Primarily, all knowledge resides in the head of the knower, and if it is being shared, this is done in an informal manner. The following aspects are characteristic of this phase:

- Organizations are not yet made aware of the power vested in knowledge, and/or the importance of knowledge as a strategic resource.



- ICT (if it is present within the organization) is not managed in an effective and efficient manner. Organizations are getting to grips with the way they handle data and information. There is a need to develop an understanding of existing ICT systems, ICT technology, where information resources are situated and what the capabilities of technical personnel, etc., are.

During these preliminary phases, organizations should progress to an ICT maturity level where they are capable of knowing and managing what constitutes data and information. At the end of this stage, organizations should be capable of shifting data and information by means of ICT, in support of business operations. ICT-related relationships should be of a sound nature. In order to aid in these endeavours, it is proposed that simple system maps and lists can be used to clarify ICT issues. Although ICT and information management can be considered enablers of knowledge management, due to the data-to-information cycle, a certain amount of ICT should be in place in order for information management to function optimally. In a similar manner the information-to-knowledge cycle dictates that certain information management practices can be regarded as prerequisites to successful knowledge management. These include:

- The ability to determine information needs.
- The ability to determine the value and cost of information.
- The ability to procure, store, distribute, retrieve, share, dispose and protect information.
- Having an information management policy and strategy in place.

It should be noted, however, that it is envisaged that some of the initial phases will run concurrently with successive ICT and knowledge management phases.



4.4.2 Phase 2: Deciding on knowledge management issues

During the second level of maturity, there must be a realisation of the importance of knowledge, recognition that a formal knowledge management function exists, and an associated drive to instill this realisation into the entire organization ((Davenport (1998), Taylor Small and Tattalias (2000), Tiwana (2000), Logan (2001), and Laudon and Laudon (2004)).

In order to launch this phase it is proposed that the level of knowledge management orientation within the organization be determined. It is imperative that the extent to which knowledge is regarded as a strategic resource, be assessed. Emphasis should not only be placed on assessing the knowledge orientation of the organization, but this orientation should be consciously turned into a commitment to inculcate a knowledge culture in the organization. It is proposed that while the preliminary technological platform is put in place (as proposed in Phase 1), endeavours in knowledge management should start off by identifying issues, success factors and elements that will promote the institution of a culture of knowledge and knowledge management architecture within the organization. In order to focus all knowledge management efforts, the future state of knowledge (the formulation of a knowledge vision) within the organization should be dealt with explicitly. It should be noted that at this point only the conscious decision to embark on knowledge management should be addressed, and not the extent to which knowledge issues are institutionalised.

During this stage ICT systems within the organization should at least have evolved to a level where the organization knows what constitutes data and information systems. Ideally, an ICT audit should be done, enabling managers to assess ICT's applicability to knowledge management.

4.4.3 Phase 3: The formulation of an organization-wide knowledge management policy

This level constitutes a realization among business managers that knowledge is of extreme importance. In essence plans and policies to establish a knowledge culture within

the organization are formulated. During the latter part of this phase there should be a realization that for knowledge to have an exponential effect, it must be shared throughout the organization, e.g. knowledge cannot be managed in isolation within different organizational functions. Thus, the key element of this phase should be a conscious decision to establish a knowledge management function, knowledge domains, as well as forums to provide knowledge management with governance.

The primary goal of this phase would be the formulation of an organization-wide knowledge management policy on how the organization is going to manage, secure and protect knowledge as a strategic resource (both tacit and explicit); as well as guidelines on how the organization's knowledge repository should be formulated. At this level of maturity, ICT systems should have evolved to a stage where they are capable of going beyond the point of merely supporting operations to a point of being capable of supporting management decisions and knowledge work⁴².

4.4.4 Phase 4: Formulating knowledge management strategy/strategies

The next level of maturity commences with a focus on determining to what extent organizations know what constitutes knowledge resources (both tacit and explicit), where knowledge resources are situated and why resources are strategic (i.e. organizational awareness of the power vested in knowledge, and/or the importance of knowledge as a strategic resource). In order to bridge the gap between current knowledge and knowledge needed (to base business strategy formulation on), organizations at this level must be able (via the use of competitive intelligence and internal knowledge-sharing systems) to formulate a knowledge strategy and knowledge management strategies. In essence, this constitutes the ability to formulate strategies to explore, create, acquire, transfer, capture, codify, share and distribute knowledge. Of importance is the realisation that strategies include ICT, information management, human resource and other organizational aspects.

⁴² Unsophisticated decision support systems, management information systems, fragmented databases, office automation systems, etc.



At this level, efficient and effective ICT architectures and knowledge infrastructures⁴³ should already be in place. During this phase, managers must become more than just aware of the power vested in knowledge. They must consciously begin encouraging endeavours in knowledge management. Typical of this phase will be the need of organizations to rely heavily on information systems to achieve and sustain competitive advantage. Decision support and strategic information systems should be available to support and even enable knowledgeable decision-making, as well as group decision-making, to take place.

4.4.5 Phase 5: Implementation of knowledge management strategies

Kazimi, Dasgupta and Natarajan (2004:06) state that ‘Investment in technology, and improvement in culture is not enough. It is the currency of knowledge creation that matters most for organizations seeking sustained knowledge advantage’. At this level strategists start perceiving ICT, information management and knowledge management as interdependent entities, entities irreplaceable in the quest to sustain competitive advantage. The emphasis in ICT and knowledge management shifts to streamlining processes and procedures. Where the knowledge strategy is insufficient to supply answers to strategic knowledge gaps, and/or if strategists (functional owners) point out that ‘new and more’ knowledge and intellectual capital are needed in order to institutionalize future business strategies, there is a necessity to either leverage the power of existing internal knowledge resources, or increase knowledge in a particular area. A checklist to determine whether or not this level of maturity has been reached should not only focus on questions to determine if strategists can formulate strategies to increase knowledge in a particular area, and/or leverage existing knowledge, but should also assess whether or not the organization is capable of formulating efficient and effective plans⁴⁴ to change the

⁴³ Single access point, centralised knowledge management databases, competitive intelligence systems, single enterprise resource planning systems, integrated decision support systems, group and team supporting systems, and possibly even executive support systems.

⁴⁴ These plans must lead to defined Knowledge Management Projects with precise expected results, due dates, priorities and responsibilities – Long-term Operational Knowledge Management plans (per knowledge domain) and Short-term Knowledge Management plans (per knowledge domain). According to Ndlela and du Toit (2001), these action plans should include specific time frames, people involved and the amount of resources required to successfully institutionalise knowledge management.



organization's knowledge structure and supporting ICT structure from the 'as is' to the required 'should be' structure (refer to Figure 4.2). At this level the goals of ICT management and knowledge management converge in a quest to continually improve processes, i.e. optimize the use of ICT with regard to maximizing the value gained from knowledge.

Central to all of these strategies and plans is the quest to institutionalize knowledge and ICT systems that gradually enhance the effectiveness and efficiency of the organization's ability to explore, create, acquire, transfer, capture, codify, share and distribute knowledge. According to Kochikar (2004:09), 'more of what (knowledge) goes out, comes in'. In essence this phase represents the capstone of knowledge management maturity within the organization. In the words of Kochikar (2004:10), 'the culture of sharing has institutionalized; sharing becomes second nature to all'.

4.4.6 Phase 6: Ubiquitous knowledge

As soon as organizations are capable of continually enhancing and formulating strategies to further create and/or to process knowledge internally, the next evolutionary step involves utilizing the knowledge of the organization's partners and extended partners. To emphasise this point, Kazimi, Dasgupta and Natarajan (2004:06) state that knowledge maturity will in the end be determined by how well the organization can manage knowledge across all segments. During this phase 'knowledge management needs to seamlessly integrate with the enterprise eco-system', an eco-system consisting of customers, business partners, (shareholders, alliances, etc), operations and vendors (Kazimi, Dasgupta and Natarajan, 2004:06). This mindset requires that the organization's ICT architecture be capable of transcending the borders of the organization, i.e. capable of not only sharing data and information, but also knowledge and expertise with all stakeholders in the organization's extended value chain. However, due to cost and technological restrictions, most organizations will not easily reach or pass this point of knowledge management maturity. A checklist to determine whether or not this level of maturity has been reached should not only focus on determining if knowledge is being shared among value chain partners, but more specifically to what extent knowledge



management has become institutionalised between partners. If this level has not been reached, then organizations must return to Phase One of the maturity model, and once again progress through all these phases, this time adding the sharing of knowledge access boundaries to the line of reasoning, e.g. deciding on knowledge issues applicable to all stakeholders, formulating a knowledge management policy to govern the sharing of knowledge across the extended value chain, formulating holistic knowledge management strategies, etc. In agreement with this, Kazimi, Dasgupta and Natarajan (2004:06) maintain that: 'Knowledge management has come in the e-business era when basic architectures are being reinvented. Organizations implementing knowledge management programs also have the daunting task of implementing a gamut of e-business applications. As such knowledge management should not only co-exist with these applications, but it should integrate seamlessly. As the organization attains higher maturity, it will be able to manage this in an increasingly effortless manner'.

4.4.7. The next phase - The future

The evolution of knowledge management beyond the point of sharing knowledge between partners in an extended value chain remains a mystery. In future, if knowledge is going to be regarded as the organization's most precious resource, this will necessitate the sharing and trading of knowledge even beyond the borders of the organization's extended value chain. Following the argument proposed by Ndlela and du Toit (2001) that if the same characteristics of knowledge management are found in competing enterprises then the characteristics cannot continue to be a source of competitive advantage, indications are that in future knowledge management could reach a saturation point, a point where the cost of sustaining an extended knowledge management infrastructure could no longer be financially justified, and/or technologically supported. This could lead to a point where knowledge and ICT management, rather like the universe in the 'big bang' theory', diverge, implode and collapse back into the organization.



It should be noted that the transition from one phase to another is not cast in concrete - discrepancies and divergence between phases is a reality. The model should therefore not be seen as being too prescriptive - an all-inclusive approach to determining knowledge management maturity⁴⁵. As Gallagher and Hazlett (2004:14) agree, the implication is not that in all cases organizations should zealously strive to progress to the next evolutionary level. In certain circumstances, before attempting a succeeding phase, it might be necessary to embark on a period of discontinuity, and first reflect on what has been achieved. However, what is certain is that phases progress along a line of descent, not by replacing previous phases, but by building knowledgeably on prior phases. Even though progressions through these phases should bring the organization closer and closer to reaching its ultimate knowledge vision, organizations constantly need to revisit and amend prior phases. Knowledge issues, success factors, policy, and strategy need to be constantly revised to adhere to changes in the organization's internal and external environment.

4.5 Summary

In the previous chapter (section 3.4 and 3.5), it was emphasized that certain issues, policies and strategies are crucial to effective and efficient knowledge management. It is argued that when placed in chronological order, these issues follow a managerial methodology of planning, organizing, leading and control. In this chapter an evolutionary methodology is proposed in respect of the progression of knowledge management within an organizational setting - a methodology not built solely on determining capability maturity, but rather on determining the progression of strategic issues related to knowledge management. By meticulously analysing the relevant literature it emerges that one of these issues is ICT and another is information management. It is argued that for knowledge to be sufficiently managed, organizations must progress to a point where they are able to manage ICT, information and knowledge simultaneously as strategic resources.

⁴⁵ Cognizance is taken of Parlbey's (1999a and b) warning against prescriptive approaches to knowledge management.



The next chapter builds on this notion and argues that knowledge management maturity, when brought into context with business strategy formulation, can assist in establishing criteria to assess the efficiency and effectiveness of knowledge management in an organizational setting.