

**HARNESSING THE INTELLECTUAL CAPITAL  
OF AN ORGANISATION:  
AN EXPLORATORY STUDY**

**Lourens Johannes Erasmus Beyers**



**Assignment presented in partial fulfilment of the requirements for the  
degree of  
Master of Philosophy (Information and Knowledge Management) at the  
University of Stellenbosch**

**Supervisor: Dr. M.S. van der Walt**

**December 2004**

## DECLARATION

I, the undersigned, hereby declare that the work contained in this assignment is my own original work and that I have not previously in its entirety or in part submitted it at any university for a degree.

Signature: .....

Date: **November 2004**



## **ABSTRACT**

### **HARNESSING THE INTELLECTUAL CAPITAL OF AN ORGANISATION: AN EXPLANATORY STUDY**

Although there is a general consensus that the knowledge society and the knowledge economy has arrived, and that knowledge is a key business asset, organisations are still in the early stages of understanding the implications of knowledge management and intellectual capital.

The rise of the new economy that is principally driven by information and knowledge can be attributed to the increased prominence of intellectual capital in organisations. Intellectual capital features prominently in recent economic, managerial, technological and sociological developments in a manner previously unknown and unforeseen.

The challenge of this research assignment is typified by the problem statement and its objectives, namely: Although much has been written about knowledge management, the learning organisation and intellectual capital, little, if any, has been written about the relationship and correlation between knowledge management and intellectual capital management. The challenge seems to provide integrated guidelines and a practical implementation system as to how organisations can use both knowledge management and intellectual capital for the formulation of a comprehensive intellectual management approach.

In an attempt to develop guidelines and a practical implementation system for a comprehensive intellectual capital management approach, the following was undertaken with this research assignment:

Firstly, the impact of the knowledge economy on organisations is discussed. Secondly, practical guidelines are provided on how to manage knowledge in organisations.

The various types of capitals are, furthermore, analysed and specific guidelines provided on how to harness these different capitals in the organisations. The new

phenomena of the intellectual capital entrepreneur is also highlighted. Lastly, particular emphasis is provided to the formulation of a comprehensive intellectual capital management approach. Practical guidelines are also formulated for the implementation of a comprehensive intellectual capital management system for organisations.

Based on this study, some of the most important conclusions drawn are that:

- Successful management of knowledge is the basis for generating intellectual capital in organisations on any long-term basis.
- The linking of knowledge management and intellectual capital activities is a prerequisite for the successful implementation of an intellectual capital management system in organisations.
- A comprehensive intellectual capital management system can only be successfully implemented if organisations have structures in place to generate intellectual capital on an ongoing basis.

Recommendations for further research include:

- The impact of the knowledge economy on South African organisations should be determined.
- Research should be done as to how organisations can integrate knowledge management and intellectual capital activities.
- The current role and impact of the intellectual entrepreneur in South African organisations should be identified.
- Guidelines that will enable organisations to measure intellectual capital should be developed.

The problem statement, namely, to provide South African organisations with a practical and comprehensive intellectual capital management approach, is addressed in this research. Recommendations to enhance intellectual capital in organisations are provided and explained.

## OPSOMMING

### DIE ONTWIKKELING EN TOEPASSING VAN DIE INTELLEKTUELE KAPITAAL VAN 'N ORGANISASIE: 'N VERKLARENDE STUDIE

Alhoewel daar algemene konsensus is dat die kennisgemeenskap en die kennisekonomie 'n realiteit is, en dat kennis 'n belangrike bate is, is organisasies nog in die vroeë stadiums om te begryp wat die implikasies van kennisbestuur en intellektuele kapitaal is.

Die opkoms van die nuwe ekonomie, wat hoofsaaklik deur inligting en kennis gedryf was, kan toegeskryf word aan die toenemende prominensie van intellektuele kapitaal in organisasies. Intellektuele kapitaal figureer prominent in resente ekonomiese, bestuurs, tegnologiese en sosiologiese ontwikkelings op 'n wyse wat voorheen onbekend en onvoorsien was.

Die uitdaging van hierdie navorsingstaak word gekenmerk deur die probleemstelling en sy doelwitte, naamlik:

Alhoewel heelwat geskryf is oor kennisbestuur, die lerende organisasie en intellektuele kapitaal, is baie min, indien enige, geskryf oor die verwantskap en korrelasie tussen kennisbestuur en intellektuele kapitaalbestuur. Dit blyk dat die uitdaging geïntegreerde riglyne verskaf en ook 'n praktiese implementeringsstelsel daarstel oor hoe organisasies beide kennisbestuur en intellektuele kapitaal kan benut vir die formulering van 'n alomvattende intellektuele bestuursbenadering.

In 'n poging om riglyne en 'n praktiese implementeringsstelsel vir 'n alomvattende intellektuele kapitaal bestuursbenadering te ontwikkel, is die volgende onderneem met hierdie navorsingstaak:

Eerstens is die impak van kennisekonomie op organisasies bespreek, en tweedens is praktiese riglyne verskaf oor hoe kennis in organisasies bestuur moet word.

Verder is verskeie tipes intellektuele kapitale geanaliseer en is spesifieke riglyne verskaf oor hoe hierdie verskillende kapitale in die organisasies toegepas kan word.

Die nuwe verskynsel van die intellektuele kapitaal entrepreneur is uitgelig en besondere klem is gelê op die formulering van 'n bestuursbenadering vir intellektuele kapitaal. Laastens is praktiese riglyne ook geformuleer vir die implementering van 'n alomvattende bestuursbenadering tot 'n intellektuele kapitaalsisteem binne organisasies.

Met hierdie studie as basis is die volgende van die mees belangrike gevolgtrekkings:

- Suksesvolle bestuur van kennis is die grondslag van enige langtermyn ontwikkeling van intellektuele kapitaal in organisasies.
- Die ineenskakeling van kennisbestuur en intellektuele kapitaal aktiwiteite is 'n voorvereiste vir die suksesvolle implementering van 'n intellektuele kapitaal bestuursisteem in organisasies.
- 'n Alomvattende intellektuele kapitaal bestuursisteem kan alleenlik suksesvol geïmplementeer word as organisasies strukture in plek het om intellektuele kapitaal op 'n deurlopende basis te genereer.

Aanbevelings vir verdere navorsing sluit die volgende in:

- Die impak van die kenniseconomie op Suid-Afrikaanse organisasies behoort bepaal te word.
- Navorsing behoort gedoen te word met betrekking tot hoe organisasies kennisbestuur en intellektuele kapitaal aktiwiteite kan integreer.
- Die bestaande rol en impak van die intellektuele entrepreneur in Suid-Afrikaanse organisasies behoort geïdentifiseer te word.
- Riglyne behoort ontwikkel te word wat organisasies in staat sal stel om intellektuele kapitaal te meet.

Die probleemstelling, naamlik om Suid-Afrikaanse organisasies te voorsien van 'n praktiese en alomvattende intellektuele kapitaal bestuursbenadering, is in hierdie navorsing aangespreek. Aanbevelings om intellektuele kapitaal in organisasies te versterk is verskaf en verduidelik.

## ACKNOWLEDGEMENTS

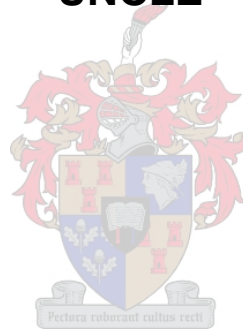
My sincere thanks to Dr. Martin van der Walt for his guidance, availability and friendliness.



**DEDICATED**

**TO MY**

**UNCLE**



**ADV. CHRIS BEYERS**



# CONTENT

PAGE

## CHAPTER 1 INTRODUCTION

1.1	BACKGROUND .....	1
1.2	PROBLEM STATEMENT AND FOCUS .....	4
1.3	OBJECTIVES OF THE RESEARCH .....	4
1.4	RESEARCH QUESTIONS .....	4
1.5	RESEARCH METHODOLOGY .....	5
1.6	CHAPTER OUTLINE .....	6
1.7	CONCLUSION .....	7

## CHAPTER 2 THE NEED TO MANAGE KNOWLEDGE MANAGEMENT IN THE ORGANISATION

2.1	INTRODUCTION.....	8
2.2	THE KNOWLEDGE ECONOMY .....	9
2.3	KNOWLEDGE MANAGEMENT AS POINT OF DEPARTURE .....	10
2.4	EMBRACING KNOWLEDGE MANAGEMENT AS A PHILOSOPHY IN THE ORGANISATION .....	12
2.5	KNOWLEDGE MANAGEMENT AS A STRATEGIC MANAGEMENT TOOL .....	13
2.5.1	Strategy questions to be answered .....	14
2.5.2	Organisational questions to be answered .....	14
2.5.3	The transfer of knowledge in the organisation .....	15
2.6	A FRAMEWORK FOR KNOWLEDGE NETWORKING.....	19
2.6.1	Facilitating conditions.....	20
2.6.2	Knowledge work processes .....	20
2.6.3	Knowledge and network architecture .....	21
2.6.3.1	Inter-connect the different levels and areas of knowledge.....	21
2.6.3.2	Interconnect knowledge work processes and knowledge network architecture.....	21
2.6.3.3	Interconnect knowledge work processes and facilitating conditions .....	21
2.7	GENERAL GUIDELINES FOR THE SUCCESSFUL IMPLEMEN- TATION OF KNOWLEDGE MANAGEMENT IN THE ORGANISATION .....	22
2.8	LINKING KNOWLEDGE MANAGEMENT WITH INTELLECTUAL CAPITAL.....	24
2.9	CONCLUSION .....	27

## CHAPTER 3 DEFINING THE VARIOUS TYPES OF CAPITALS

3.1	INTRODUCTION.....	29
3.2	INTELLECTUAL CAPITAL.....	29
3.3	HUMAN CAPITAL .....	31
3.4	STRUCTURAL CAPITAL .....	32
3.5	CUSTOMER CAPITAL.....	33

3.6	DEVELOPING HUMAN CAPITAL.....	34
3.6.1	Communities of practice.....	36
3.6.2	Possible obstacles to the successful implementation of human capital initiatives .....	37
3.7	DEVELOPING AND SUPPORTING INTELLECTUAL CAPITAL (INFORMATION) ENTREPRENEURS.....	38
3.7.1	Intellectual Capital Entrepreneurs .....	38
3.7.2	Developing intellectual capital entrepreneurs.....	39
3.8	HOW HUMAN CAPITAL CONTRIBUTES TO VALUE .....	40
3.9	HUMAN CAPITAL AND ORGANISATIONAL COMPETITIVENESS.....	43
3.10	DEVELOPING STRUCTURAL CAPITAL.....	44
3.10.1	Structuring organisational knowledge into useful structural capital .....	45
3.10.2	Best practices .....	46
3.10.3	Corporate memory system.....	47
3.10.4	Competitor analysis.....	47
3.10.5	Benchmarking .....	48
3.10.6	Lessons learnt.....	50
3.10.7	Simulations .....	50
3.11	DEVELOPING CUSTOMER CAPITAL .....	51
3.12	CONCLUSION .....	51

## **CHAPTER 4**

### **FORMULATING AND IMPLEMENTING A COMPREHENSIVE INTELLECTUAL CAPITAL MANAGEMENT APPROACH**

4.1	INTRODUCTION.....	53
4.2	INTELLECTUAL CAPITAL REALISATION PROCESS.....	53
4.3	REALISATION OF THE KNOWLEDGE ORGANISATION.....	54
4.4	THE HUMAN CAPITAL REALISATION PROCESS.....	55
4.5	SOCIAL CAPITAL AND ORGANISATIONAL CULTURE REALISATION PROCESS .....	56
4.7	THE INTELLECTUAL CAPITAL MANAGEMENT SYSTEM (ICMS) .....	59
4.7.1	Implementation of an Intellectual Capital Management System (ICMS) .....	60
4.8	CONCLUSION .....	66

## **CHAPTER 5**

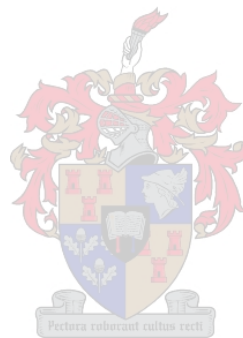
### **CONCLUSION AND RECOMMENDATIONS**

5.1	INTRODUCTION.....	67
5.2	SUMMARY OF THE LITERATURE STUDY .....	67
5.3	RECOMMENDATIONS.....	68
5.4	AREAS FOR FUTURE RESEARCH .....	68
5.5	RESTRICTIONS OF THE STUDY .....	69
5.6	CONCLUSION .....	69

LIST OF SOURCES .....	70
-----------------------	----

## LIST OF FIGURES

<i>Figure 1: The nine knowledge transfers</i>	17
<i>Figure 2: The nine knowledge strategy questions</i>	17
<i>Figure 3: Knowledge networks</i>	20
<i>Figure 4: The relationship between IC and KM</i>	25
<i>Figure 5: Aligning KM with IC</i>	25
<i>Figure 6: Intellectual Capital Web (ICW)</i>	26
<i>Figure 7: The relationship between strategic objective and IC</i>	26
<i>Figure 8: Conceptualisation of Intellectual Capital</i>	30
<i>Figure 9: A climate for growth of human capital</i>	41
<i>Figure 10: Intellectual capital benchmarking system</i>	49
<i>Figure 11: Intellectual capital model of the board</i>	59



## ABBREVIATIONS & DESCRIPTIONS USED

“CICM”	-	Comprehensive Intellectual Capital Management
“CoPs”	-	Communities of Practice
“HC”	-	Human Capital
“IC”	-	Intellectual Capital
“ICM”	-	Intellectual Capital Management
“ICMP”	-	Intellectual Capital Management Process
“ICMS”	-	Intellectual Capital Management System
“ICW”	-	Intellectual Capital Web
“KM”	-	Knowledge Management
“SC”	-	Structural Capital



# CHAPTER 1

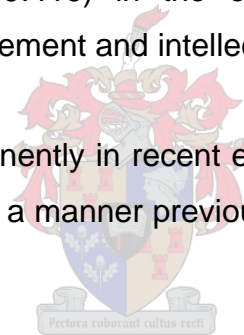
## INTRODUCTION

### 1.1 BACKGROUND

The exceptional growth of information in the knowledge economy focuses attention on the importance of managing knowledge in organisations. These knowledge managing organisations are referred to as the so-called learning organisations. These are organisations that recognise the value of knowledge within the organisations (Karp, 2003:21).

Although there is a general consensus that the knowledge society and the knowledge economy have arrived, and that knowledge is a key business asset, organisations are still, according to Rowley (1999:416) in the early stages of understanding the implications of knowledge management and intellectual capital in organisations.

Intellectual capital features prominently in recent economic, managerial, technological and sociological developments in a manner previously unknown and largely unforeseen (Petty & Guthrie, 2000:55).



Although much has been written on knowledge management (KM), the learning organisations and Intellectual Capital (IC), little if anything has been written about the correlation and relationship between KM and intellectual capital (Herremans & Isaac, 2004:143; Karp, 2003:22; Marti, 2001:150). The challenge seems to be to provide an integrated program or system on how organisations can harness both KM and IC for the total management of its intellectual capital asset. Although there are many similarities between KM and intellectual capital management, these concepts are not the same. KM relates to the creation of value, the gathering of ideas, the measuring of employee brainpower, and the conversion of taught knowledge into explicit knowledge that the organisation can codify and transfer. IC relates to the maximisation of value. This achieved through the licensing of know how and the use of intellectual capital to gain a competitive advantage. Further uses of IC are to enter new markets, establish

strategic alliances, and generate revenue (Carroll & Tansley, 2000:296-312; Karp, 2003:20-27).

Nickerson and Silverman (1998:320-321) as well as Petty and Guthrie (2000:155) state that the proponents of the KM and IC approaches identify the benefits of each of these management approaches, but fail to see the connection or the interaction between KM and IC. It is possible in some industries that one approach may seem more important than the other. Nonetheless, for any organisation to succeed in the knowledge economy, it is essential to adopt both KM and IC approaches to some extent, as each deals with complementary strategic needs. What some organisations fail to see is that KM and IC are essential components for the total management of an organisation's intellectual asset management.

The question can now be asked: What is driving the current interest in IC? The *new economy* has shifted away from the traditional manufacturing to an economy driven by knowledge. Carroll and Tansey (2000:296-298) conclude that the shift to the *new economy* is most evident in high technology organisations. Business success in these organisations is enhanced by the ability to use IC to maintain and extend competitive advantage and ensure profitable returns. The major forces driving this transition from a traditional manufacturing to a knowledge economy are:

- e-commerce that is revolutionising the way business is conducted;
- technological changes in materials handling, information processing and biotechnology;
- trade liberalisation represented by agreements such as the European Free Trade Agreement and the expansion of the World Trade Organisation. This has resulted in greater mobility of professionals and created a competitive market for human capital;
- globalisation of production systems. (Carroll & Tansey, 2000:296-298).

The rise of the new economy is principally propelled by information and knowledge and enhances the importance of IC. The current interest in IC is driven by:

- the revolution in information technology and the information society;

- the rising importance of knowledge and the knowledge-based economy;
- the changing patterns of interpersonal activities and the network society; and
- the emergence of innovation as the principal determinant of competitiveness.

(Nicholson & Kiel, 2004:320-322; Thou & Fink, 2003:35).

The question, *What is intellectual capital?* has to be addressed. Petty and Guthrie (2000:157) describes intellectual capital as "the economic value of two categories of intangible assets of a company: (1) organisations ("structural") capital; and (2) human capital". One of the major limitations on further use of intellectual capital is its managerial limitations. According to NicholSEN and Kiel (2004:6) the use of intellectual capital is, in general, more difficult to manage and operate than tangible assets because of its loose nature. Well known physical and financial assets are easier to manage than intellectual capital. Karp (2003:21) suggests that the most important steps in improving intellectual capital management are to:

- formally define the strategic role of intellectual capital in the organisation;
- divide intellectual capital in strategic areas in the organisation; and
- develop a tailor-made implementation and measurement system to make intellectual capital work for the organisation.



For comprehensive intellectual capital management to be effective, organisations have to focus on KM and IC. Focusing on one approach to the exclusion of the other would result in a waste of management and financial resources, and the polarisation of the management philosophy of the enterprise (Nicholson & Kiel, 2004:5-23; Tyman & Stumpf, 2003:12-20).

For intellectual capital management to succeed, an approach must be followed that encompasses the total strategic management of an organisation's intellectual capital throughout the entire organisation. The best approach to maximise the benefits of effective IC management is a comprehensive intellectual capital management (CICM) strategy for the organisation as a whole.

## 1.2 PROBLEM STATEMENT AND FOCUS

Much has been written on knowledge management (KM), the learning organisation and intellectual capital (IC). It seems however, that little if any, has been written about the relationship and correlation between KM and intellectual capital management.

The challenge seems to be to provide integrated guidelines as to how organisations can use both KM and IC for the formulation of a comprehensive intellectual capital management approach.

## 1.3 OBJECTIVES OF THE RESEARCH

This research assignment aims to provide organisations with specific theoretical and practical guidelines on how to harness intellectual capital.

## 1.4 RESEARCH QUESTIONS

The following questions will be addressed in the research assignment, namely:

- What is the impact of the knowledge economy on organisations?
- What is the role of knowledge management in the modern organisation?
- How can knowledge management be used as a strategic management tool?
- How is knowledge management linked with intellectual capital in the organisation?
- What is the relationship between intellectual capital, human capital, structural capital and customer capital?
- How can human capital be developed in organisations?
- What is the role of intellectual capital entrepreneurs in organisations?
- What objectives do we wish to achieve with IC in the organisation?
- What is the degree to which IC activities integrate with the business strategy?
- What kind of workers should be involved with these activities? *Information technology experts? IC entrepreneurs? Senior and/ or top management?*
- How does the intellectual realisation process take place in organisations?
- What role should strategic management play in enhancing IC resources in the organisation?



- What level of human resources will the organisation have to commit to the management of IC?
- How should an IC system be practically implemented in the organisation?

## 1.5 RESEARCH METHODOLOGY

The research classification of the study is qualitative. A qualitative classification means to gain or obtain a detailed understanding of the insights of the research problems proposed (Cooper & Schindler, 2001:770). Qualitative research is where the researcher is concerned with:

- naturalistic observation rather than controlled measurement;
- focusing on implementation rather than on quantifiable outcomes;
- the subjective explanation of an insider opposed to an outsider perspective (Mouton, 2001:161-162).

The reasoning was inductive because conclusions were drawn from particular facts or pieces of information and evidence selected from research previously performed (Cooper & Schindler, 2001:764). Furthermore, the qualitative research was explanatory in nature. Qualitative research refers to research undertaken that is focused on the understanding of the research problem in detail by gathering background information (Cooper & Schindler, 2001:762). A scientific investigation into a theoretical problem in the field of KM and IC was launched.

In the study the primary focus was on secondary data collection methods such as handbooks, journals, research reports, electronic information, press articles and other relevant documents. The literature was selected according to the following criteria:

- Clarity – whether it is written in a clear understandable language.
- Holistic – whether it provides a clear and comprehensive context of the subject matter.
- Currency – the most recently available resources as well as several authoritative older texts were consulted.

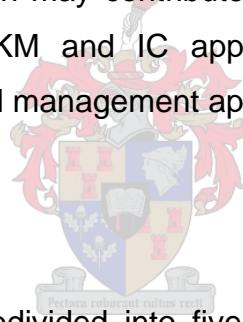
- Authority of the authors – an internet search of the subject identified a number of authors who are widely published and cited in the subject matter and it is accepted that this is an indication of their status as authorities in this regard.

In order to address the objectivity of the study, the research was explicitly designed in a logical sequence that connects the collected material to the study's initial theoretical points of departure and ultimately to its conclusions and recommendations.

Summary evaluation statements will be made to demonstrate how the individual chapters and sections, individually and combined, contribute to an improved understanding of Intellectual Capital management.

It is also not the aim of the proposed extensive research assignment to claim ultimate relevance by stating that the findings are of relevance to all organisations, nor are the recommendations meant to be applicable in all circumstances. The aim is rather to present preliminary findings which may contribute to an overall understanding of the correlation and integration of KM and IC approaches for the formulation of a comprehensive intellectual capital management approach (CICM) for organisations.

## 1.6 CHAPTER OUTLINE



The research assignment is subdivided into five chapters. Besides Chapter 1, the assignment is structured into the following chapters:

Chapter 2 provides insight into the management of knowledge in the organisation. As a point of departure, the impact of the knowledge economy on organisations is discussed. This chapter serves as essential background to develop and understand the importance to manage knowledge in the organisation. Practical guidelines are provided by, firstly, discussing KM as a strategic tool and by providing a practical framework for knowledge networking; and, secondly, by providing guidelines for the successful implementation of knowledge management in the organisation.

As stated in Chapter 1, very little seems to be written about the relationship and correlation between KM and IC. This is addressed by means of a brief outline on how to link KM and IC in organisations.

Chapter 3 contains an analysis of the various types of capitals. Furthermore, thorough guidelines are provided on how to develop the human capital and an explanation is also provided how human capital indeed contributes to value creation in organisations. The new phenomenon of the intellectual capital (information) entrepreneur is also highlighted.

In Chapter 4, particular emphasis is given to the formulation and implementation of a comprehensive intellectual capital management approach. A thorough understanding of this approach as well as the practical implementation of such an approach is provided. This is done by explaining the intellectual capital realisation process that has to take place before practical implementation of a comprehensive intellectual capital management approach can be realised.

As stated in 1.3 above, the ultimate objective of this research assignment is to provide organisations with practical guidelines on how to formulate and complement a comprehensive intellectual capital management system. This is indeed addressed in the latter part of chapter 4.

Chapter 5 provides concluding observations and recommendations of the research assignment. The purpose of this chapter is to convey an overall encompassing view of the study. To this end, the main findings of the study are summarised, and the most pertinent conclusions and recommendations for the formulation of a comprehensive intellectual capital management approach are formulated.

Emphasis is also given to the inherent limitations and shortcomings of this research assignment. Lastly, recommendations for further study are provided.

## **1.7 CONCLUSION**

Chapter 1 gives an overview of the background and context of the research. It also provides a problem statement and the focus of the research objectives to be achieved, the research methodology used, and an overview of the chapters.

# **CHAPTER 2**

## **THE NEED TO MANAGE KNOWLEDGE MANAGEMENT IN THE ORGANISATION**

### **2.1 INTRODUCTION**

Intellectual capital (IC) is a key driver of innovation and achieving a competitive advantage in today's knowledge based economy (Teece, 2000:7). At the same time, knowledge management (KM) is recognised as the fundamental activity for obtaining, growing and sustaining IC in organisations (Marr, et al., 2003:772).

This means that the successful management of IC is closely linked to the KM processes an organisation has in place. This in turn implies that the successful implementation and usage of KM presents the foundation for the successful acquiring, application and growth of IC in an organisation.

The basic importance and relationship between the knowledge economy, KM and IC is explored in this chapter. Although there is wide recognition that the knowledge society and knowledge economy has arrived, organisations are, according to Rowley (1999:416), still in the early stages of understanding the implications of knowledge management on the organisation as a whole. These implications will be addressed in this chapter.

For organisations to be successful in the 21<sup>st</sup> century, they will have to be part of the knowledge economy. The meaning of the concept knowledge economy and its implications for organisations are discussed in this chapter.

Knowledge management is the first competency an organisation needs to develop for the successful management of IC. To be able to understand this core competency, a brief discussion is presented on the characteristics, creation and application of KM. Rowley (1999:416-420) states clearly that the successful management of KM in the organisation is only possible if the management team of an organisation embraces KM

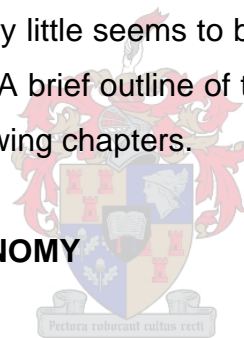
as part of the organisation's philosophy. Guidelines are provided on how to make KM part of an organisation's philosophy.

Specific guidelines are provided on how to apply KM as a strategic tool in the organisation. Strategy and organisational questions are identified that have to be answered before KM can be implemented as a strategic tool. Ways in which KM can be transferred to be used as a strategic tool, are also outlined. The application of KM as a strategic tool requires the organisation to have a framework for knowledge networking in place. The main components of a framework for knowledge networking are also explained in this chapter.

General guidelines for the successful implementation of KM in the organisation are also outlined.

Lastly, as stated in chapter 1, very little seems to be written about the relationship and correlation between KM and IC. A brief outline of the linking of KM with IC is provided as point of departure for the following chapters.

## **2.2 THE KNOWLEDGE ECONOMY**



For the purpose of this study, the phrase knowledge economy will be used to include the following terms, namely the knowledge era, the knowledge age, the information age, the new economy and the new world.

The knowledge economy refers to the knowledge-based economy. In essence, this means according to Garrick and Clegg (2000:279-286) that the knowledge economy era is driven by an organisation and the individual's ability to effectively acquire, develop, resolve, use, store and share knowledge. It is also made possible by the ability to create an approach to transform and share both tacit and explicit knowledge. Authors like Stewart (1997:14-16) make it clear that successful organisations of the 21<sup>st</sup> century will not be able to rely only on the common production factors, namely, labour, capital and land, for their success. Instead, organisations will have to manage these tangible assets along with intellectual assets and intellectual property.

In this knowledge-based economy, organisations increasingly have to deal with the following demands and matters:

- an increased complexity of products and processes;
- a growing oversupply of this reservoir of information and knowledge both technical and non-technical;
- increasing competition in an economy with shorter product life cycles, in which case learning processes have to be quicker;
- an increased focus on the core competencies of the organisations which have to be co-ordinated (uit Beijerse, 1999:94-110).

Typical changes that affect organisations in this new century are the following:

- The law of economics has changed. Knowledge, information and intellectual capital have become the most valuable commodities;
- The very nature of work has changed. There is a major shift to self-reliance and lifelong learning;
- The speed of change is in continuous acceleration mode;
- The business environment is more competitive than ever before;
- The state of competitive advantage can be very temporary;
- The shift to service-based businesses is a significant factor to keep sight of;
- Technologies that enable global knowledge-sharing have been and are being developed and improved daily (Marr, et al., 2003:771-781; Thou & Fink, 2003:34-48; Perez & de Pablos, 2003:82-91).

### **2.3 KNOWLEDGE MANAGEMENT AS POINT OF DEPARTURE**

Knowledge management (KM) is the first competency that an organisation needs to develop for the management of IC. KM constitutes the ability of an organisation to learn, to remember what is learned, and to leverage what is learned internally and externally. This is done internally by transferring knowledge to different departments, and externally by sharing it with suppliers, distributors, partners and customers. Knowledge management's critical importance lies in building the platform of

knowledge on which innovation and other core business processes, like IC management, can be launched (Perez & de Pablos, 2003:83).

Since knowledge is the core competency in the management of IC, it is useful to briefly look at Grant's (1997:451-454) assumptions concerning the characteristics of knowledge, the circumstances of its creation, and the value of its application:

- Knowledge is an important productive resource in terms of its strategic significance.
- Different types of knowledge vary in their transferability. Explicit knowledge which can be articulated is transferable at low cost. Tacit knowledge which manifests only in its application, is more difficult to transfer. The ease with which knowledge can be transferred also depends upon the capacity of the recipient to respond to units of knowledge.
- Individuals are the primary agents of knowledge creation, and in the case of tacit knowledge, are the principal repositories of knowledge. If individuals' learning capacity is bounded, knowledge creation requires specialisation. However, an increase in depth of knowledge normally requires sacrificing breadth of knowledge.
- Most knowledge is subject to economies of scale and scope. This is especially the case with explicit knowledge, which, once created, can be deployed in additional applications at low marginal cost.

Nonaka, et al., (2000:5-34) state that despite the widely recognised importance of IC, there is little understanding of how organisations actually create IC by effectively managing knowledge. It is crucial that KM practices in organisations match the knowledge creation requirements of individuals or group of individuals who are involved in knowledge creation (Nonaka, et al., 2000:5-34).

It seems that information itself, has little value and will not become knowledge until it is processed by the human mind. Knowledge involves the processing, creation, or use of information in the mind of the individual (Måtersson, 2000:204-216). There are, however, according to various authors (uit Beijerse, 1999:94-110; Måtersson, 2000:204-216; Marr, et al., 2003:771-781; Perez & de Pablos, 2003:82-91), several advantages in managing KM through individuals in organisations, namely, to:

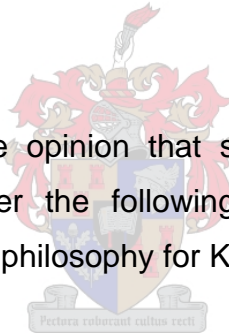
- improve efficiency;

- improve relevant competencies;
- improve the market position by operating more intelligently on the market;
- improve communication between knowledge-workers;
- make professionals learn more efficiently and more effectively;
- enhance the profitability of the company.

## **2.4 EMBRACING KNOWLEDGE MANAGEMENT AS A PHILOSOPHY IN THE ORGANISATION**

According to Rowley (1999:416-420) many organisations recognise the importance of KM, and are engaged in activities to enhance their knowledge processing. Few organisations have, however, embraced knowledge as part of an underlying management philosophy. The effective management of knowledge has significant consequences for the structure and culture of the organisation, and the roles of managers and workers.

Rowley (1999:416-420) is of the opinion that senior managers and management executives must seek to answer the following questions before moving to full implementation of a management philosophy for KM, namely:



- What is the central objective of knowledge management within an organisation?
- What are the levels at which knowledge management must be considered, and how can it be executed at the different levels?
- What is the scope of knowledge management in relation to types of knowledge it should focus on?
- What are the technologies and techniques to be employed in knowledge management?



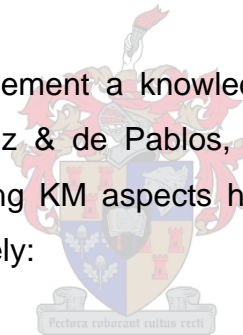
- What organisational roles are needed to support knowledge management, and what are the associated competencies that both individuals and the organisation need to acquire?

There will be no simple answers to these questions because in a diverse and changing business environment, the nature of knowledge management is likely to be ever changing. Organisations need to develop the necessary KM capacity to survive in a knowledge-based global marketplace (Gupta & Roos, 2001:297-309). This is discussed in the following sections.

## 2.5 KNOWLEDGE MANAGEMENT AS A STRATEGIC MANAGEMENT TOOL

Managing knowledge is a key element in the achievement and sustainability of a competitive advantage.

To successfully create and implement a knowledge management strategy, various authors (Sveiby, 2001:3-4; Perez & de Pablos, 2003:3; uit Beijerse, 1999:94-110) have suggested that the following KM aspects have to be addressed before a KM strategy can be formulated, namely:



- The management of an organisation must develop a long-term vision in which the organisation indicates where it wants to be in the future. Together with a vision, a mission, long term-, medium term- and short term goals must be formulated. The long-term vision must ideally reflect the collective values and ambitions which the workers of the organisation share with each other. The medium-term and short-term goals should be reflected in a KM policy which is known by and accessible by all members of the organisation.
- It is important that the management of the company knows what the market needs, what customers want, and what the competition is doing.
- The most important aspect of the knowledge management process is how learning is stimulated in the organisation and how knowledge is being managed. Management have to take note of what knowledge is available and what is needed.

- The knowledge infrastructure must form part of the overall organisational structure. The organisational structure must facilitate the various knowledge management practices.

### **2.5.1 Strategy questions to be answered**

uit Beijerse (1999:94-110) poses the following strategic questions to be answered to ensure that KM is effectively used as a strategic management tool, namely:

- Does the management of the organisation know the kind of activities competing organisations undertake with regard to the development of knowledge?
- What are the core competencies of the organisation in terms of knowledge assets?
- Does the management of the organisation have a long-term vision of the knowledge which will be needed in the future?
- Is there short- and medium-term strategies in place regarding the acquisition, sharing and evaluation of knowledge?
- Has management formulated a knowledge policy?



### **2.5.2 Organisational questions to be answered**

- Does the organisation have a knowledge management friendly organisational structure that facilitates the acquirement, the sharing and the evaluation of knowledge between workers?
- Is there a management-friendly organisational culture that enhances the acquisition and sharing of knowledge?
- Does the management style of the organisation stimulate the acquirement and sharing of knowledge between workers?

- Is there an integrating knowledge infrastructure in the organisation that secures the necessary continuing steps to determine the gap between needed and available knowledge?
- Does the organisational infrastructure make the development, buying, sharing and evaluating of knowledge possible? (Måtersson, 2000:204-216; uit Beijerse, 1999:94-110).

### **2.5.3 The transfer of knowledge in the organisation**

Sveiby (2001:346) has identified nine basic knowledge transfers as part of the strategic management process, which create value for the organisation. This knowledge transfer process is discussed briefly.

#### **2.5.3.1 Knowledge transfers between individuals**

The transfer of knowledge between individuals refers to the process how best to enable communication between employees within the organisation. The strategic question according to Sveiby (2001:4) is:

“How can we improve the transfer of competency between workers in the organisation? How willing are people to share what they know with co-workers? Activities such as team building, trust building and team activities are necessary to foster trust among workers.”

#### **2.5.3.2 Knowledge transfer from individuals to the external structure**

The transfer of knowledge to the external structure is concerned with how organisation’s employees transfer their knowledge to the external business environment. The strategic question is: “how can the organisation’s employees improve the well-being of customers, suppliers and other stakeholders?” The answer to these questions lead towards the provision of better service. This is made possible by transferring high quality knowledge as part of the service to fore-mentioned stakeholders (Sveiby, 2001:347).

### 2.5.3.3 Knowledge transfers from external structure to individuals

Knowledge transfers from the external environment refers to learning experiences from customers, suppliers and community feedback. Examples of knowledge transfers from external structure are ideas, new experiences, feedback and new technical knowledge.

The strategic question according to Sveiby (2001:347-348) is: “How can the organisation’s customers, suppliers and other stakeholders improve the competence of the employee?” The answers to such questions are to focus on activities that create and maintain good personal relationships between the organisation’s workforce and the stakeholders outside the organisation.

### 2.5.3.4 Knowledge transfers from competence to internal structure

The strategic question is: “How can we improve the conversion of individually held competence to systems, tools and templates” (Sveiby, 2001:348)? Answers to such questions lead towards activities-focused tools, templates, process and systems so they can be shared by more workers more efficiently.

### 2.5.3.5 Knowledge transfers from internal structure to individual competence

Once competence is “captured in a system” it needs to be made available to other individuals in the organisation. This has to be done in away that competence improve workers’ capacity to act, otherwise the investment is a waste. The strategic question is: “How can we improve individuals’ competence by using systems, tools and templates?” Answers to these questions focus on activities that improve human-computer interface systems, action-based learning processes, simulations and interactive e-learning environments (Sveiby, 2001:348).

Figure 1: The nine knowledge transfers (Sveiby, 2001:352)

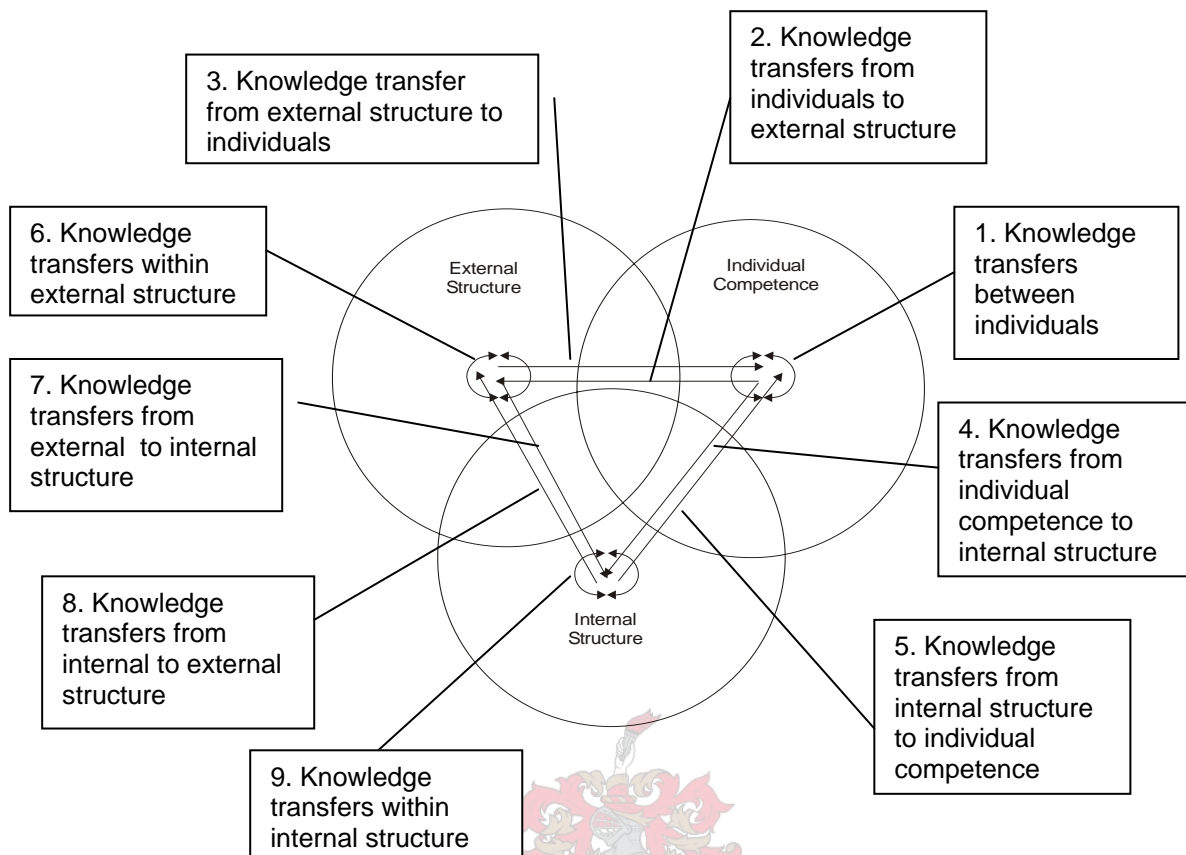
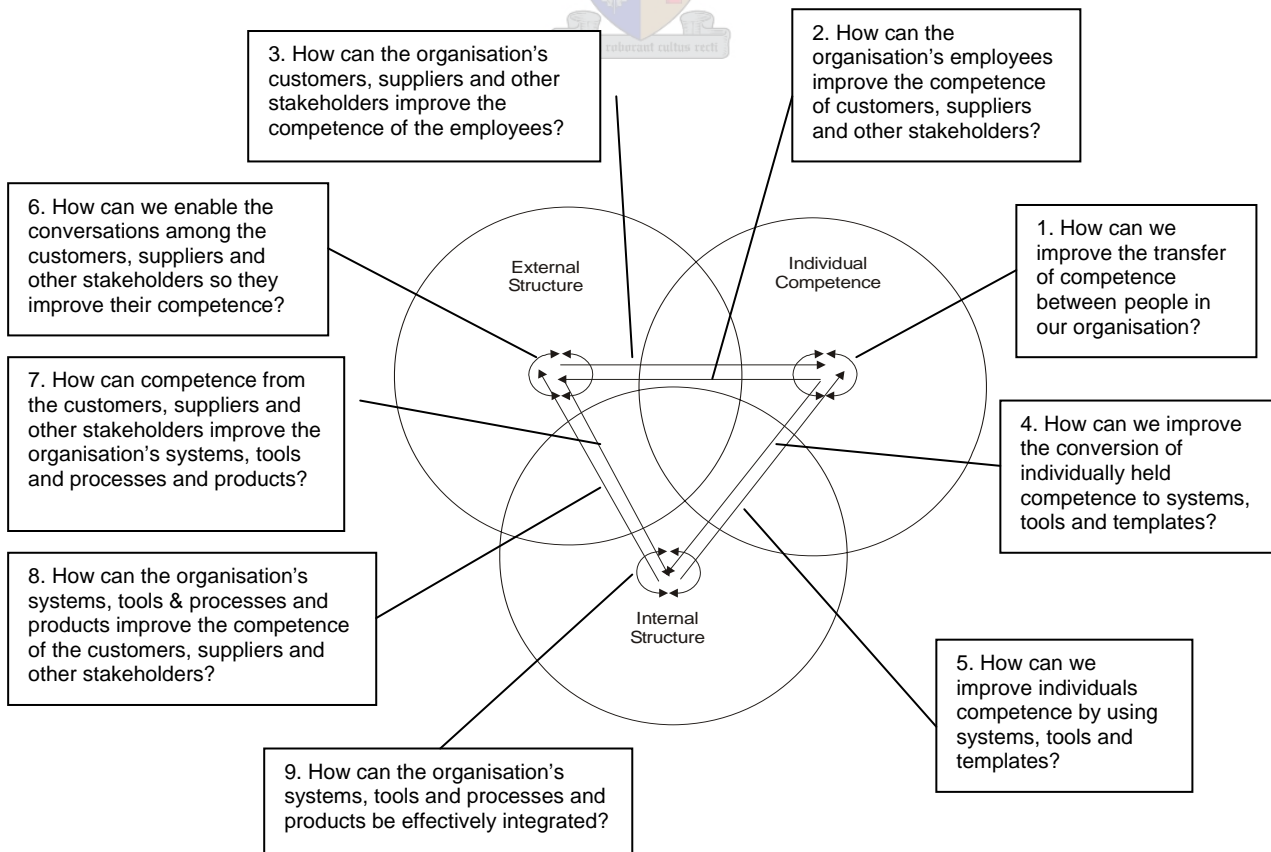


Figure 2: The nine knowledge strategy questions (Sveiby, 2001:352)



### 2.5.3.6 Knowledge transfers within the external structure

This knowledge transfer refers to what customers tell each other about the services of an organisation. A knowledge perspective provides a wider range of possible activities to the traditional customer satisfaction surveys. This is achieved by focusing on how the competence of customers is transferred between the stakeholders in the external structure. According to Sveiby (2001:348) the strategic question is: “How can we enable the conversations among the customers, suppliers and other stakeholders so that they improve their competence? “ Answers to such questions focus on how the organisation will enhance partnerships and alliances, improve the image of the organisation and the brand equity of its products and services, improve the quality of the offering and conduct product seminars.

### 2.5.3.7 Knowledge transfers from external to internal structure

These knowledge transfers focus on how knowledge can be transferred from external to internal structures. What knowledge the organisation can gain from the external market and macro environments and how this learning process can be converted into action. The strategic question is: “How can competence from customers, suppliers and other stakeholders improve the organisation’s systems, tools, processes and products?” Answers to such questions lead towards activities focused, according to Sveiby (2001:349), on empowering call centres to interpret customer complaints, and to create alliances to generate ideas for new products.

### 2.5.3.8 Knowledge transfers from internal to external structure

The strategic question is: “How can the organisation’s systems, tools, processes and products improve the competence of the customers, suppliers and other stakeholders?” The answer leads the organisation to focus on making the organisation’s systems, tools and processes more effective in serving the customer, extranets and e-business in general (Sveiby, 2001:349).

### 2.5.3.9 Knowledge transfer within internal structure

The internal structure is the platform from which the organisation functions. The strategic question is: “How can the organisation’s systems, tools, processes and products be effectively integrated?” The answers to these questions are focused on streamlining databases and building integrated IT systems (Sveiby, 2001:349).

## 2.6 A FRAMEWORK FOR KNOWLEDGE NETWORKING

Various authors (Måtersson, 2000:204-216; Perez & de Pablos, 2003:82-91; Seufert, et al., 1999:180-190) advocate the establishment of a framework for knowledge networking for organisations. Such a framework for knowledge networking can be used effectively with Sveiby’s (2001:344-358) nine values for the transfer of knowledge.

The term knowledge networking signifies a number of people, resources and relationships. Knowledge is primarily created by means of a knowledge creation and transfer process for the purpose of creating value (Perez & de Pablos, 2003:84-85). The framework of knowledge networks comprise of the following components:

- Actors made up by individuals, groups and organisations;
- Relationships between actors that can be categorised by form, content and intensity;
- Resources which may be used by the actors within their relationships; and
- Institutional properties which include structural and cultural dimensions such as: control mechanisms, standard operating procedures, norms, rules and communication patterns (Måtersson, 2000:206-207).

Seufert, et al., (1999:187) conceptualise knowledge networks by means of three building-blocks (see Figure 3 on page 20) that are briefly discussed.

## 2.6.1 Facilitating conditions

This comprises the network's internal structural and cultural dimensions in which knowledge work processes take place. Facilitating conditions enable the creation and transfer of knowledge.

## 2.6.2 Knowledge work processes

This comprises the social interaction and communication processes on an individual and group basis in organisations. These processes can be conceptualised as a knowledge spiral. This "spiral" is described by Seufert, Von Krogh & Bach (1999:180-190) as a dynamic transformation process between explicit and tacit knowledge on the different layers. Socialisation refers to the exchange of tacit knowledge between individuals in order to convey personal knowledge and experience. Joint experience results in new shared implicit knowledge, such as common values or technical skills.

Figure 3: Knowledge networks (Seufert, et al., 1999:187)

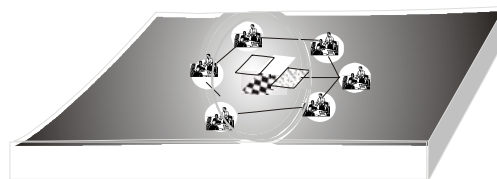
### Facilitating Conditions



#### Social relationship taking place in institutional properties

- structural dimension
- cultural dimension

### Knowledge Work Processes

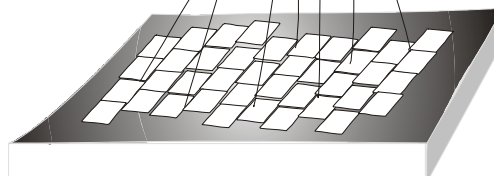


#### Social relationship

##### Actor

- |                                |               |
|--------------------------------|---------------|
| • Individual                   | Relationships |
| • Group                        | • form        |
| • Organisation                 | • content     |
| • Collectives of organisations | • intensity   |

### Knowledge Network Architecture



#### Tools used within social relationships

- Organisational Tools
- Information and Communication Tools



### **2.6.3 Knowledge and network architecture**

This comprises the tool-set used within social relationships as indicated by Seufert, et al. (1999:182-183). These tools include organisational information and communication tools (refer to Figure 3 on page 20).

The following aspects are important to fully understand the dynamics of a knowledge framework and the subsequent knowledge architecture to make this process work, (Seufert & Seufert, 1998:14-20).

#### **2.6.3.1 Inter-connect the different levels and areas of knowledge**

Knowledge results from linking previous knowledge with new knowledge. It is therefore essential that networking between individual knowledge types like explicit and implicit knowledge take place. The networking between different levels, for example, individuals and groups and different areas of knowledge in the organisation, are important.

#### **2.6.3.2 Interconnect knowledge work processes and knowledge network architecture**

Knowledge creation and transfer can occur at different real, virtual or mental *places* in the organisation: Knowledge is also established through formal and informal networks. The fact that knowledge in the modern organisations occurs more and more in different time-zones and different physical places, make the application of modern information and communication technologies a critical success factor (Seufert, et al., 1999:186).

#### **2.6.3.3 Interconnect knowledge work processes and facilitating conditions**

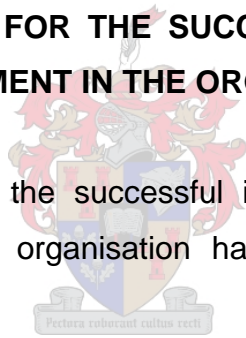
For organisations (Seufert, et al., 1999:186) to be able to develop their knowledge creation, transfer and facilitating conditions optimally, these activities must be cross-linked with each other. These processes must be synchronised with the environment and the corporate culture within which they occur. Organisations should further more develop and maintain

facilitating conditions in order to allow and support efficient and effective knowledge facilitating conditions. This will ensure efficient and effective knowledge creation and transfer.

Although knowledge networks (refer to Figure 3 on page 20) are described in the form of different layers in the organisations, we have to take into account the macro-perspective of inter-dependence between the knowledge network itself and the surrounding organisational unit. In order to develop a high-performance knowledge network according to Seufert, et al. (1999:187-188), these activities have to be synchronised by means of facilitating conditions. These conditions are firstly, divided into structural systems, for example, organisational structure and management systems, and secondly, into cultural structures such as corporate culture and organisational behaviour.

## **2.7 GENERAL GUIDELINES FOR THE SUCCESSFUL IMPLEMENTATION OF KNOWLEDGE MANAGEMENT IN THE ORGANISATION**

Arora (2002:240) specifies that the successful implementation and application of knowledge management in the organisation has the following broad objectives, namely, to:



- leverage the organisation's knowledge;
- create new knowledge and promote innovation;
- increase collaboration between employees;
- enhance the skills level of organisations; and
- provide the organisation with a competitive advantage.

To achieve these broad objectives, the *knowledge* organisation will have to continually ask, and provide answers to the following questions:

- Does our knowledge work?

- Does the organisation have a knowledge management-friendly organisational structure that facilitates the acquirement, sharing and evaluation of knowledge between knowledge workers?
- How do we create knowledge?
- How do we maintain and enhance knowledge?
- Does the organisation's knowledge infrastructure ensure that the necessary steps are taken to determine knowledge gaps, develop and buy knowledge, share knowledge and evaluate knowledge?
- Are there instruments in the organisation which are specifically aimed at the determination of the difference between the available and needed knowledge? (Arora, 2002:240-241; Hackett, 2000:5).

By asking and providing answers to these questions, the organisation will be able to achieve its knowledge management – and its overall objectives.

Du Toit (2002:22) as well as Hackett, (2000:5) are of the opinion that all knowledge management programmes must be linked to the organisation's income statement. These include factors such as cost reduction, revenue enhancement, financial performance and the management of risk associated with the marketplace. Hackett (2000:5) is of the opinion that for knowledge management to be successful, value has to be created from the organisation's intangible assets. To achieve this aim, an integrated and systematic approach to identifying, managing and sharing the organisation's entire information and knowledge asset, has to take place.

From the work of Arora (2002:240-241), Davenport and Prusak (1997:65-66, 191-192) and Hackett (2000:5-7) the following serve as general implementation guidelines for organisations:

- Senior management members have to buy into the idea of managing knowledge.
- The implementing of knowledge management activities is the responsibility of senior management members.
- The organisation must be able to respond to structural and cultural changes.

- The knowledge and capabilities of employees have to be understood and developed.
- Track must be kept of all sources of information, especially if there is a need to go back to the source for more information.

These items above must be seen as a point of departure for the successful implementation of knowledge management.

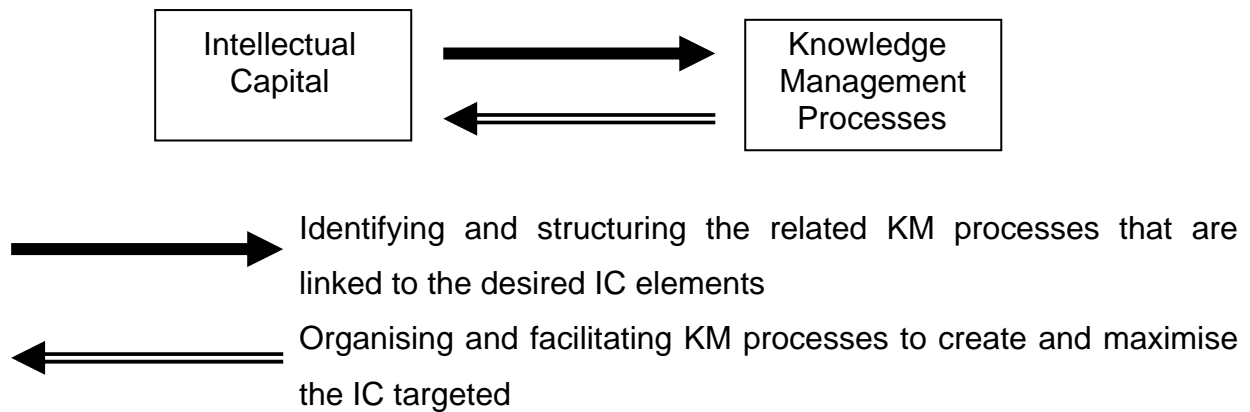
## **2.8 LINKING KNOWLEDGE MANAGEMENT WITH INTELLECTUAL CAPITAL**

In the following chapters the concept and practical application of intellectual capital is discussed. As stated in Chapter 1, very little seems to be written about the relationship and correlation between knowledge management and IC (Herremans & Isaac, 2004:143; Karp, 2003:22; Marti, 2001:150). A brief outline of the linking of KM with IC is provided.

Although IC and KM serve different purposes, they also compliment each other. According to Wiig (1997:399-405) IC and KM cover almost all aspects of organisational activities. Both activities can be seen as broad and they embrace the whole range of intellectual activities within the organisation: from knowledge creation to the leverage of knowledge. The main goal of intellectual capital management (ICM) is to create and leverage intellectual assets and to improve the organisation's value creating capabilities from a strategic point of view (Edvinsson, 1997:366-367). KM focuses on tactical and operational implementation of knowledge-related activities. KM is concerned with detailed knowledge-related activities, such as knowledge creation, capture, transformation and use. The ultimate aim of KM is to maximise IC. As stated by Wiig (1997:400), ICM and KM complement each other in the modern organisation by having important overlaps.

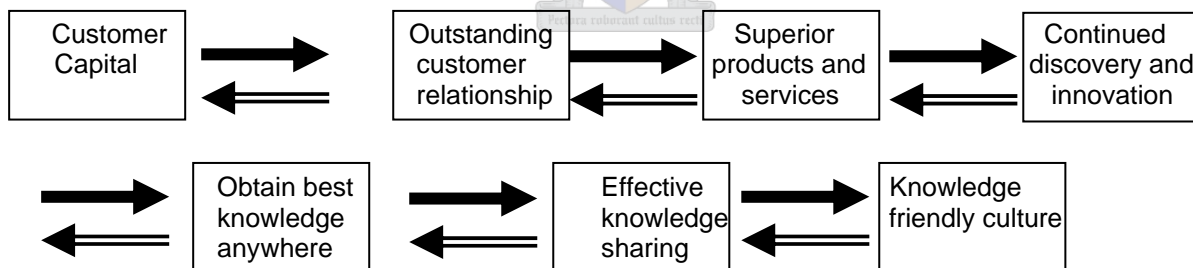
From the foregoing discussion, it is clear that the relationship between IC and KM is of vital importance to the organisation. If IC is properly utilised, it can become the organisation's central resource to sustain competitiveness, success and viability (Thou & Fink, 2003:36). The relationship between IC and KM is presented diagrammatically by Thou and Fink (2003:41) in Figure 4, p25.

Figure 4: The relationship between IC and KM (Thou & Fink, 2003:41)



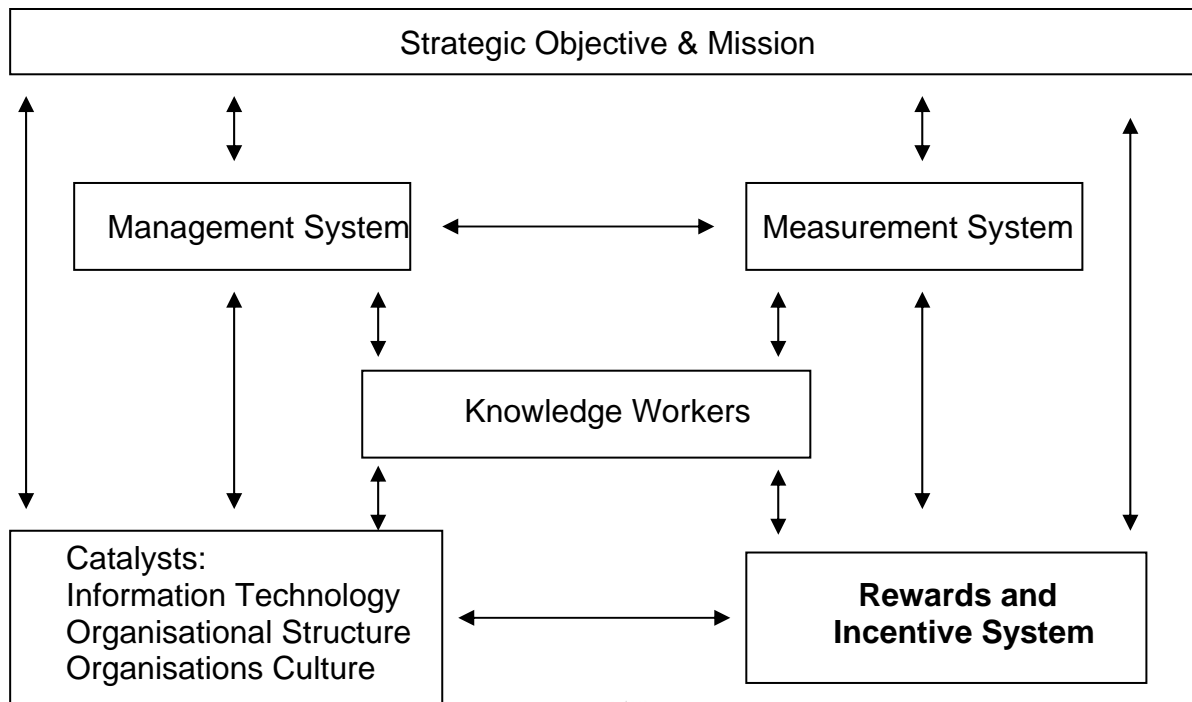
By developing linkages, it becomes possible for KM to form an integral part of the organisation's ICM process. Thou and Fink (2003:37) rightfully ask the question: 'How to create and maximise IC through KM?' It seems that the maximising of IC by linking it to KM can only be achieved if knowledge processes are managed systematically and intensely. Figure 5 by Thou and Fink (2003:41) provides an example of the linking process with individual IC elements to meet an organisation's strategic needs.

Figure 5: Aligning KM with IC - an example (Thou & Fink, 2003:41)



Thou and Fink (2003:38) are of the opinion that up to date very little research has been done on how to link KM with the organisation's strategy tactics and daily operations. They suggest the development of an intellectual capital web as a way of managing and measuring knowledge processes for the purpose of creating and maximising IC (Thou & Fink, 2003:38). Figure 6, page 26, provides an example of this ICW proposed by Thou and Fink (2003:42).

Figure 6: Intellectual Capital Web (ICW) (Thou & Fink, 2003:42)




As Figure 6 shows, the ICW is based on six elements, which are: strategic objective; management system; measurement system; knowledge workers; catalysts; rewards; and an incentive system.

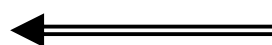
The relationship between the strategic objective and IC is presented in Figure 7 (Thou & Fink, 2003:42).

Figure 7: The relationship between strategic objective and IC

(Thou & Fink, 2003:42)

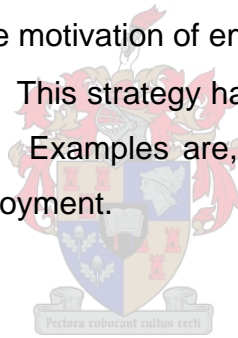


 Identifying and classifying the desired IC elements for further development

 Managing and maximising IC to meet the organisational strategic objective

Wiig (1997:45-46) states that the organisation's strategic objectives do not only give priority to which IC elements the organisation should develop and utilise, but also provide guidance on the KM strategy formulation process. Five strategies to make KM effective as identified by Wiig (1997:46), are:

- Knowledge strategy as part of the overall business strategy. This refers to activities such as knowledge creation, capture, organisation, sharing and other knowledge related activities.
- Intellectual asset management strategy. The focus is on intellectual assets such as patents, technologies, operational and management practices, customer relations and structural knowledge assets.
- Personal knowledge strategy. This strategy refers to individual knowledge investment, renewal and knowledge sharing with co-workers.
- Knowledge creation strategy. This strategy focus on organisational learning, research, development and the motivation of employees to obtain new knowledge.
- Knowledge transfers strategy. This strategy has to do with systematic approaches for the transfer of knowledge. Examples are, to obtain, restructure or memorise knowledge for knowledge deployment.



## 2.9 CONCLUSION

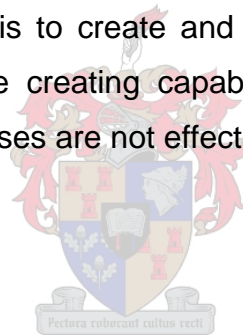
In this chapter it was determined that for organisations to be successful in the era of the knowledge-based economy, the following has to be achieved: Knowledge has to be acquired, developed, stored and shared in the organisation. Organisations must also develop the ability to transform and share both tacit and explicit knowledge. Furthermore, IC is a key driver of innovation and the achieving of a competitive advantage in today's successful organisations. KM is however identified as the fundamental activity for obtaining, growing and sustaining IC in organisations.

It is clear that without the effective management of KM, the harnessing of IC in an organisation will not be possible. In this regard it was established that KM must form an integral part of the management philosophy of an organisation. The

abovementioned approach will provide the basic foundation for the effective acquisition, application and growth of IC in the organisation.

It was also determined that organisations have to create and implement a comprehensive KM strategy to be able to utilise IC effectively. Guidelines on how to develop a KM strategy have been provided. The application of KM as a strategic tool furthermore requires organisations to establish a framework for knowledge networking. Such a framework will ensure that knowledge is transferred effectively in the organisation.

Lastly, this chapter was utilised to highlight the importance of linking KM with IC in the organisation. The ultimate aim of KM is to maximise IC. It seems that the maximising of IC by linking it to KM will only be achieved if KM processes are managed systematically and intensely. It was furthermore established that the main goal of intellectual capital management is to create and leverage intellectual assets and to improve the organisation's value creating capabilities. This will, however, not be achieved if the KM and IC processes are not effectively linked in the organisation.





# CHAPTER 3

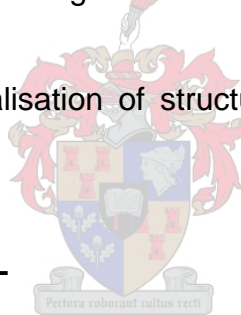
## DEFINING THE VARIOUS TYPES OF CAPITALS

### 3.1 INTRODUCTION

Intellectual capital consist of human capital, structural capital and customer capital. These competencies must be understood to enable the organisation to manage IC successfully. A discussion of these three core competencies is provided.

Specific guidelines are provided on how to develop human capital. Various methods to develop human capital are identified and discussed. An explanation is also provided how human capital contributes to value creation in organisations. The new phenomena of the intellectual capital (information) entrepreneur is also addressed. The contribution of human capital to organisational competitiveness is highlighted..

Lastly, the development and realisation of structural and customer capital are also discussed.

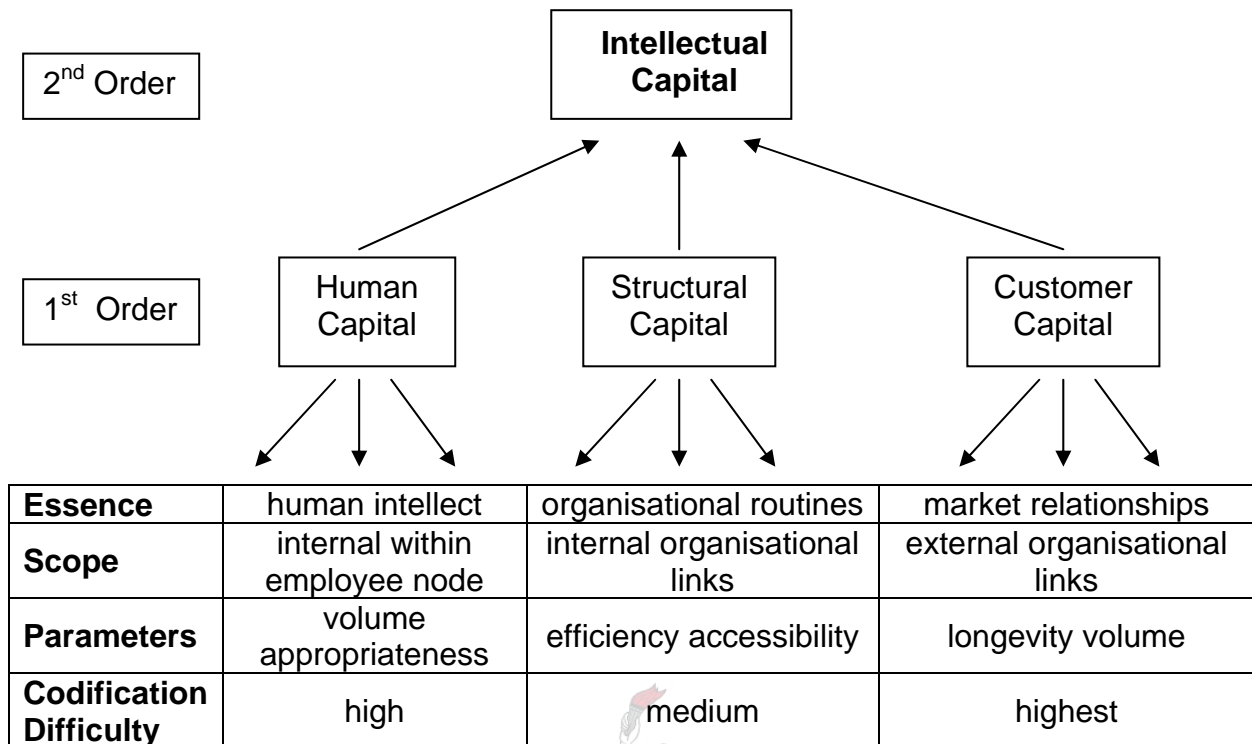


### 3.2 INTELLECTUAL CAPITAL

According to IC theorists, intellectual capital is made up by three main components: human capital, structural capital and customer capital (Thou & Fink, 2003:34). These three concepts will be discussed in more detail in the sections to follow. The term IC itself is firstly discussed. Bontis (1998:66) provides a practical conceptualisation of intellectual capital in figure 8, page 30.

In short, IC does not only include traditional intangible assets, such as trademarks, brand names and goodwill. It also includes new intangibles, such as knowledge, technology value and customer relationships. IC represents the intangible resources an organisation must utilise to obtain a competitive advantage. IC usually takes the form of intangible asset that is derived from organisational knowledge activities (Thou & Fink, 2003:38).

Figure 8 : Conceptualisation of Intellectual Capital (Bontis, 1998:66)



Herremans and Isaac (2004:143) provide a practical explanation of how the IC process takes place in the minds of individuals. IC elements reside in the minds of employees at both conscious and sub-conscious levels. According to Herremans and Isaac (2004:143), it is mostly patterns of work such as capabilities, habits and processes followed, that have often become ingrained and are therefore taken for granted by the bearers of this knowledge. The only way to bring such patterns of IC to the surface of the individual's conscious awareness, is to teach the employees to start taking the time to notice these patterns of IC or have an outside observer to identify them. Herremans and Isaac (2004:143) are of the opinion that patterns of IC behaviour, whether conscious or sub-conscious, have a powerful impact on employee behaviour. This in turn, can ultimately lead to an organisation's success or to failure. Herremans and Isaac (2004:143) make the assumption that IC elements have a comparatively shorter user period than other intangible assets like, for instance, patents and trademarks. This is especially applicable to organisations functioning in knowledge intensive and dynamic environments. As technologies, organisations and clients change in a fast paced environment, it becomes essential to change or abandon outdated IC elements and to develop more applicable IC elements.

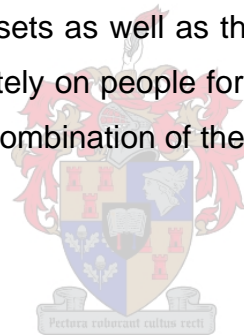
### 3.3 HUMAN CAPITAL

Before human capital (HC) can be developed, an understanding of what is generally regarded as human capital is needed.

There is not one encompassing definition that defines the concept human capital. Instead, definitions and descriptions of various authors are provided to indicate the meaning of the concept.

Carroll and Tansey (2000:302) describes human capital as the knowledge, experience, and competencies of individuals. Human capital can furthermore be seen as the competence and capabilities of employees (Sveiby, 2000:12). Sveiby (2000:12) reiterates that workers should be seen as “the only true agents in business, all tangible physical products, assets as well as the intangible relations, are results of human action and depend ultimately on people for their continued existence.” Human capital can also be defined as a combination of the following four factors:

- genetic inheritance;
- education
- experience; and
- attitudes about life and business (Bontis, 1998:65).



Bontis (1998:66) continues to describe human capital as a source of innovation and strategic renewal. Examples, such as: brainstorming, daydreaming, re-engineering new processes and improving personal skills, are mentioned. Human capital can be seen as the combined knowledge, skills, innovativeness and ability of the organisation’s individual employees to meet the task at hand. The essence of human capital can be seen as the sheer intelligence of the organisation’s workers. It obviously also includes other intangibles such as the organisation’s values, culture and philosophy (Bontis, 1998:66; Carrol & Tansey, 2000:302-303).

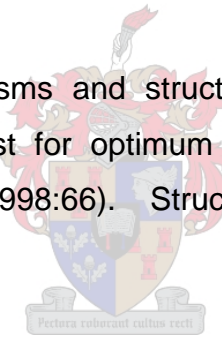
For the purpose of this study, human capital can now be defined as the competence and capabilities of the organisation's employees. It is also concluded that the value of human capital is increased when:

- workers are continuously educated and trained;
- the potential of individuals is guided and harnessed; and
- opportunities are created where people learn from each other.

It is important to note that in contrast to physical capital, human capital cannot be owned by anyone other than the individual in whom the capital resides. At best, organisations can only rent the services of individuals in which the human capital resides.

### **3.4 STRUCTURAL CAPITAL**

This concept refers to mechanisms and structures of the organisation that help support employees in their quest for optimum performance and therefore overall business performance (Bontis, 1998:66). Structural capital provides organisations with the following:



- infrastructure that allows knowledge to be captured and shared;
- the means to measure and build intellectual capital;
- the embedding of knowledge by means of documents and databases (Edvinsson, 1997:368; Edvinsson, 2000:264-265).

Bontis (1998:66) warns that “an individual can have a high level of intellect, and be motivated to deliver products and services of outstanding quality, but if the organisation has poor systems and procedures by which to track his or her actions, the overall intellectual capital will not reach its fullest potential”.

From the above statements it is clear that for IC to reach its fullest potential, organisations must have effective mechanisms and structures that support individual employees. For example, an employee can have a high level of intellect, but if the

organisation has poor systems and procedures to track his or her actions, the overall IC process will not reach its maximum potential. It has been proven that organisations with strong structural capital, usually have a supportive culture towards its employees. This allows the individual the liberty to try new ideas, to fail if necessary, and to learn and to try again (Edvinsson, 2000:265).

It is important to note that it is the concept of structural capital that makes the measurement and development of IC possible in organisations (Edvinsson, 2000:265; Preis, 2000:329). Bontis (1998:66) makes the assumption that without structural capital, intellectual capital will just be human capital. Structural capital is therefore the critical link that allows intellectual capital to be measured at an organisational level. For structural capital to function effectively in an organisation, the following factors have to be taken into account:

- efficiency;
- transaction times;
- procedural innovations; and
- information for codification into knowledge (Bontis, 1998:66; Preis, 2000:329).

Finally, structural capital can be seen as the value created by human capital. Practical examples of structural capital in organisations are databases, customer lists, manuals and organisational structures. These are the systems and procedures required to enhance and exploit human capital (Carroll & Tansey, 2000:302).

Structural capital provides a strong support link for customer capital to be addressed in the section to follow.

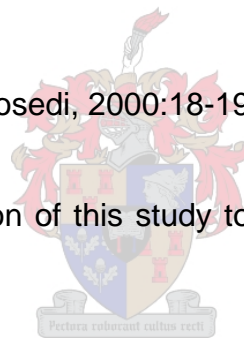
### **3.5 CUSTOMER CAPITAL**

This concept will only be briefly defined and discussed. Although customer capital forms part of IC, it is as an academic discipline mainly practiced under the broader concept of market research. The application and development of this concept in the organisation falls outside the ambit of this study.

The main focus of customer capital is on knowledge of marketing channels and customer relationships. According to Bontis (1998:67) customer capital is the most difficult capital to develop. The reason for this is it is largely external to the organisation itself. The essence of customer capital is knowledge embedded in relationships external to the organisations (Ramosedi, 2000:18). Considering the literature available, the following is an indication of what customer capital embodies:

- customer loyalty
- brands
- business collaborations
- company names
- distribution channels
- customers and the associated relationships
- value chains
- licensing agreements
- franchising agreements (Ramosedi, 2000:18-19; Robson, 2000:22).

As indicated, it is not the intention of this study to acquire in-depth knowledge about the above themes.



Finally, customer capital can be described as the value of the organisation's customer base, customer relationships and customer potential.

### **3.6 DEVELOPING HUMAN CAPITAL**

Marsick and Watkins (1999:13-14) makes mention of the fact that tacit knowledge (human capital) exist in the minds of the workforce. This is their private knowledge and is unique to them. The fundamental problem with tacit knowledge is that such knowledge is more difficult to share in the formal organisational structures. The major difficulty with human capital is to ensure that such knowledge is more readily shared by individual workers in the organisation.

Guidelines will now be provided on how to develop and hare human capital in the organisation.

In order to develop human capital, Rammosedi (2000:81) have provided the following guidelines:

- organisations need to develop the necessary policies to retain and develop their knowledge workers;
- knowledge workers require more flexibility and independence; and
- people management strategies are more important than technology strategies when implementing the management of human capital strategies.

It appears that in order to successfully manage and develop human capital, a strategic human resources development plan should be developed. Such a development plan should also enhance the overall strategic plan of the organisation. Such a strategic human resources plan should make provision for:

- Leadership: to employ the best skills available and to create systems within the organisation; which will support the development and retention of these skills;
- Human resources planning: the focus of the plan is to ensure the development of effective and competitive human capital;
- Career management: employees need to take responsibility for their own careers, while organisations in turn provide the necessary skills, opportunities and environment for the development of employee skill;
- Motivation: organisations need loyal and motivated employees who will incorporate their human capital into their place of work;
- Outsourcing divisions, if necessary, that are not part of the organisation's core business;
- Creating an emphasis on human capital by means of the following actions:
  - on the job training;
  - work rotation;
  - flatter hierarchies of authority; and
  - participative management

(Garavan, et al., 2001:51-53; Stewart, 2001:53-58; Stewart, 1997:80-84).

Various authors are of the opinion that for the development of human capital to become an ongoing activity in an organisation, individual workers should take charge of their own skills development. Workers must be willing to develop themselves further than just mastering daily tasks. Workers should be willing to adopt to new challenges. They must also be willing to accomplish a variety of tasks essential for extracting new knowledge from an ever changing environment in the new generation of organisations (Al-Ali, 2003; Perez & de Pablos, 2003).

Various methods through which human capital can be developed were identified. The most widely used methods are seminars, training courses, conferences and formal learning activities. There are also a number of not so obvious methods of learning, like communities of practice (CoPs), learning histories, knowledge fairs, collaborative conversations, workplace storytelling, and futurising and anticipatory action learning. CoPs seem to be the most dynamic and promising of the alternative methods of generating human capital. Therefore, CoPs are discussed in more detail below.

### **3.6.1 Communities of practice**

There are a variety of definitions for CoPs. A number of functional definitions will be presented. *Communities of Practice* is a term that refers to the ways in which people naturally work together. Pòr, 1997:6) states that “CoPs acknowledges and celebrates the power of informal communities of peers, their creativity and resourcefulness in solving problems, and inventing better, easier ways to meet their commitments.” According to Halal et al. (1998:20) communities of practice are “close-knit groups of like-minded people who manage themselves as a small enterprise devoted to perfecting some set of skills”. Stewart (1976:96) defines CoPs as “a group of professionals, informally bound to one another through exposure to common class problems, common pursuit of solutions and thereby themselves embodying a store of knowledge.” Stewart (1976:96) also makes the following interesting statement: “CoPs are the shop floor of human capital, the place where stuff gets made.”

There are a number of ways in which CoPs can add value to an organisation. Some of these advantages are:

- solve problems quickly;



- transfer best practices;
- develop professional skills; and
- enhance the human capital process

(Wenger & Snyder, 2000:140-141).

If CoPs are not managed effectively, the value of CoPs can go unrecognised by senior and middle management. However, CoPs can be of most value when they are accepted as part of a systematic learning process in the organisation. Organisations can take the following steps to enhance the human capital potential of CoPs, namely to:

- provide free time and meeting space to support CoPs;
- provide opportunities for bridging across customers, suppliers and even communities;
- provide infrastructure, such as intranets, video conferencing and e-mail facilities;
- identify CoPs that do or can exist in the organisation and support their attempts by means of infrastructure and resources;
- make CoPs part of the strategy formulation process in the organisation; and
- leveraging the power of CoPs in terms of driving organisational change efforts (Brown & Dunguid, 2000:76-77; Hackett, 2000:25-26).

CoPs therefore appear to be ideally suited as a mechanism or practice to facilitate learning in an organisation and more specifically to generate human capital.

### **3.6.2 Possible obstacles to the successful implementation of human capital initiatives**

Hackett (2000:5) is of the opinion that it is difficult to set human capital activities into action. It seems that the lack of a knowledge-sharing culture is the main barrier to HC development.

A poorly developed knowledge sharing culture is due to some of the following reasons:

- The lack of trust amongst colleagues;
- the need to manage knowledge is not clearly articulated;

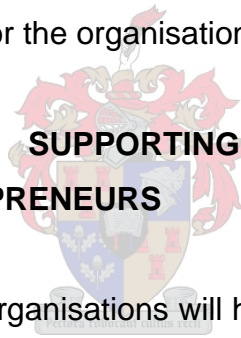
- not recognising and rewarding knowledge-sharing activities;
- the lack of integration of knowledge-sharing activities with the organisation's business processes;
- the lack of an effective information technology infrastructure to facilitate a knowledge-sharing culture

(Hackett, 2000:7-8; Lank, 1997:410)

Ramosedi (2000:70) found that differences in perceptions around knowledge-sharing between higher and lower qualified workers, also contribute to a poorly developed knowledge-sharing culture. In his research, he notes that generally speaking, lower qualified employees do not perceive the organisation as encouraging them to share their knowledge.

Lastly, HC development must be seen as a long-term investment that will not produce short term financial advantages for the organisation.

### **3.7 DEVELOPING AND SUPPORTING INTELLECTUAL CAPITAL (INFORMATION) ENTREPRENEURS**



To manage IC more effectively, organisations will have to develop a new generation of information, knowledge and learning entrepreneurs.

In the section to follow this new phenomenon called the IC entrepreneur will be addressed. Guidelines will also be provided for organisations on how to create and exploit IC with the help of IC entrepreneurs.

#### **3.7.1 Intellectual Capital Entrepreneurs**

For organisations to create wealth within an increasingly knowledge based economy, entrepreneurs are needed to understand how to access and share information (Coulson-Thomas, 2001:231). This will lead to conditions conducive to the development and understanding of knowledge. This in turn, becomes a source of IC through its expression in goods and services that will ultimately provide value for customers. Coulson-Thomas (2003:231) are of the opinion that the skills and

competencies required to do this, are different from skills needed to manage money and machines.

IC entrepreneurs need to have a workable knowledge of the following concepts, namely:

- the opportunities created by the greater availability of knowledge and information;
- how to acquire, develop, share, manage and capitalise on information and knowledge;
- how to identify and exploit market opportunities for specific information and knowledge products and services;
- how to develop the competencies to network and work in new ways in order to create value;
- how to use combinations of emerging technologies and network relevant people and organisations together; and
- how to lead and manage network organisations and virtual teams

(Coulson-Thomas, 1999:258-261; Coulson-Thomas, 2000:84-88; Perrin, 2000:14).

### **3.7.2 Developing intellectual capital entrepreneurs**

IC entrepreneurs need a sufficient understanding of systems to be able to use a range of technologies to identify and access applicable sources of information and knowledge. Perrin (2000:14-15) points out that technical expertise by itself is unlikely to be enough. Communication and relationship building skills are also required to interact with information providers to be able to assemble an IC package that has market value. Coulson-Thomas (2001:233) rightfully asks the question: "What is being done to create information entrepreneurs?" In a study by the before-mentioned author, it was found that not one of the companies examined devoted development resources to create any form of IC entrepreneur. It appears that the following key requirements for success in e-business and the knowledge economy are not addressed:

- organisations require more individual initiative, will and drive rather than collective understanding;

- most training and development efforts do not result in new strategic capabilities and IC outputs; and
- despite the enormous potential of training and development of IC to provide organisations with knowledge, value for customers and shareholders, and a potential income, this rarely seem to be the case (Coulson-Thomas, 2000:84-88).

Many organisations, large and small, as well as public sector organisations, need to assess the relevance of IC entrepreneurship and the potential for it in their respective organisations. Key questions which stakeholders and management should address are as follows:

- Is the organisation functioning in a sector where information and knowledge are accounting for an increasing portion of the value been generated for customers?
- Has the organisation identified and communicated the competencies required by IC entrepreneurs to be able to make a contribution?
- Are applicable information, knowledge, techniques and support networks made available and used?
- Have the various forms of IC been identified and protected?
- Are the various forms of IC fully exploited and is their revenue contribution monitored?
- Is an effective framework used to capture and store IC in a variety of forms?

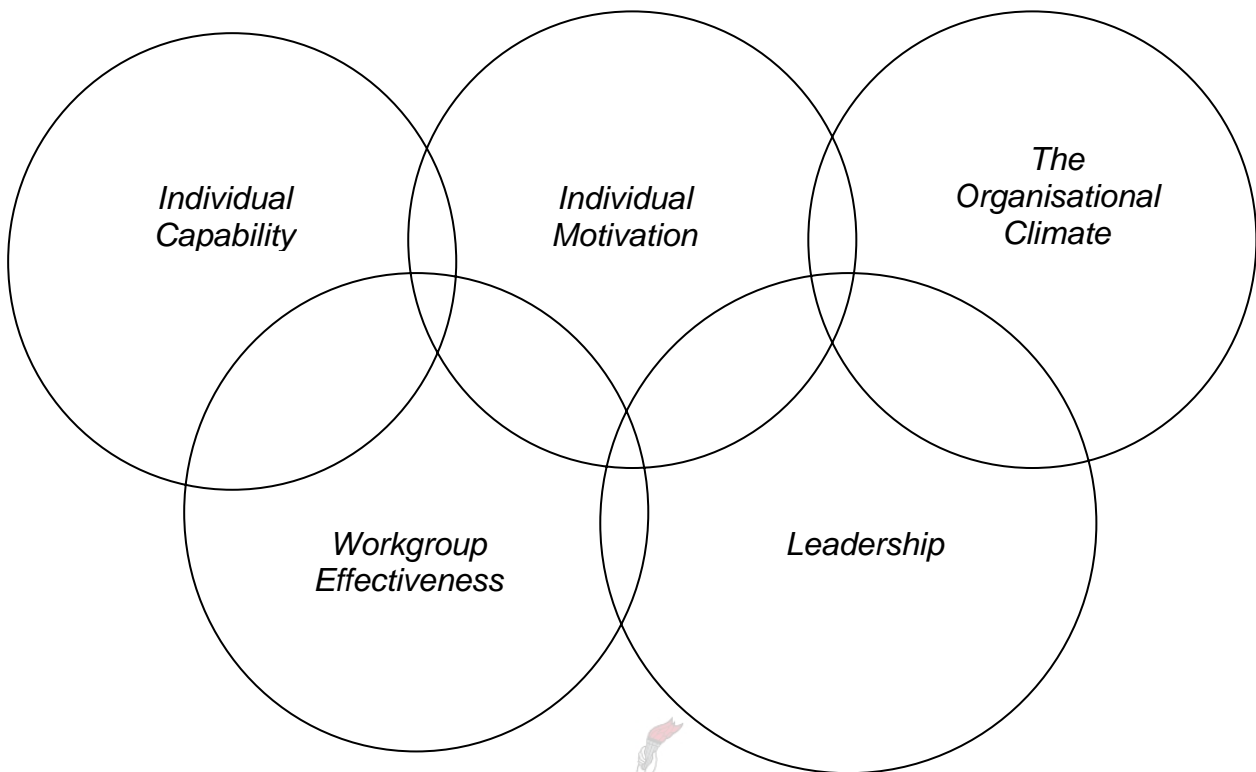
(Coulson-Thomas, 2000:84-88; Perrin, 2000:21-22).

### **3.8 HOW HUMAN CAPITAL CONTRIBUTES TO VALUE**

*Added value* is a term used by human resources practitioners (HR) to indicate *being valued*. The meaning of this concept is: the wealth added through people (Mayo, 2000:524).

Mayo (2000:524-527) identifies four factors that combine to produce a climate of people growth. See figure 9 on the next page.

Figure 9: A climate for growth of human capital (Mayo, 2000:529)



These four factors that contribute to the value of human capital and growth are briefly discussed.

- **Individual capability**



This refers to the capability of the person. The following dimensions are identified:

- personal capabilities;
- professional and technical know-how;
- experience;
- the network and range of personal contacts; and
- the values and attitudes that influence actions (Mayo, 2000:524).

This factor basically has to do with the individual's knowledge, skill, experience, potential and ability to achieve results.

- **Individual motivation**

According to Mayo (2000:525) the most important motivator is the nature of the work itself and its appeal and interest to the individual. Matching workers to roles that bring interest and enjoyment is thus a key individual motivation factor.

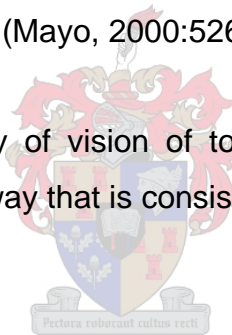
- **Leadership**

There is no doubt that effective leadership is an important asset to organisations. Conversely, poor leadership have the following negative effects on workers:

- poor morale;
- complacency;
- failure to respond to markets and customers; and
- poor strategic choices (Mayo, 2000:526).

Effective leadership is the clarity of vision of top management and their ability to communicate it and behave in a way that is consistent with it.

- **The organisational climate**



Mayo (2000:526) is of the opinion that the way the organisation functions internally, is an important factor in its ability to harness IC. Some factors to be considered are:

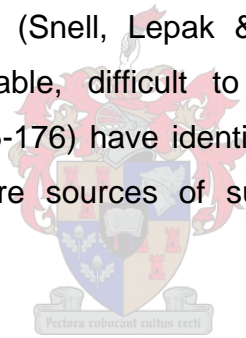
- How are individuals and teams valued? Is it by their mistakes or primarily by their achievements?
- If mistakes are made, is it seen as part of a learning curve?
- Is experimentation encouraged? Are workers expected to use their own judgement? Is creativity a valued and sought after competence?
- Are enough resources provided in comparison with the strategies and tasks to be achieved?
- Are workers willing to share knowledge and access what fellow workers know?

The effectiveness of the organisational climate is largely determined by the following factors: the freedom to innovate; flexibility; openness; and respect for the individual worker.

These four factors, as presented by Mayo (2000:524-526), form part of one system. As indicated in the foregoing discussion, deficiencies in any one of these factors can affect the overall progress in the value of a worker.

### **3.9 HUMAN CAPITAL AND ORGANISATIONAL COMPETITIVENESS**

Perez and de Pablos (2003:82) are of the opinion that a sustained competitive advantage in the new economy depends largely on the organisation's capacity to develop and deploy its knowledge-based resources. In order for organisational resources to become a source of sustainable competitive advantage, certain characteristics must be present (Snell, Lepak & Youndt, 1999:175-176). These resources must be rare, valuable, difficult to imitate and without substitutes. Moreover, Snell, et al. (1999:175-176) have identified the following characteristics of organisational resources that are sources of sustainable competitive advantage, namely:



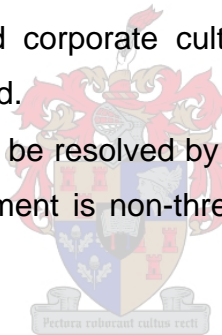
- that they cannot be commercialised, as they are developed and accumulated within the organisation;
- that their origin lie in the organisation's skills;
- that they display a strong intrinsic character; and
- that they should be strongly linked to the organisation with a high component of immobility.

Resources of the organisation are valuable when they contribute to improving effectiveness, capitalise on opportunities and neutralise threats (Perez & de Pablos, 2003:85). Ultimately, the importance of human capital is determined by the degree to which it contributes to the creation of a competitive differentiation. From an economic view, this indicates that the organisation gains a competitive advantage when its own specific resources cannot be copied by rivals.

### 3.10 DEVELOPING STRUCTURAL CAPITAL

Brown and Durguid (2000:80) are of the opinion that the following barriers have to be removed before the organisation can capitalise on its structural capital activities:

- **Strategic barriers.** This can be addressed by creating and communicating a strategic view of knowledge throughout the organisation.
- **Organisational barriers.** This can be solved by establishing a supportive reporting structure and the building of an effective IT structure.
- **Infrastructure barriers.** The hard- and software within the organisation must be standardised.
- **Process barriers.** The knowledge capturing and knowledge access processes must be standardised.
- **Cultural barriers.** A shared corporate culture and common language among employees must be established.
- **Individual barriers.** This can be resolved by teaming workers with experts and to ensure that the work environment is non-threatening in terms of experimentation with new ideas.



Davenport and Prusak (1997:28-32) have identified the following key elements of information and knowledge management that have to be addressed when structuring, creating and maintaining structural capital. These elements are:

- **The integration of diverse types of information and knowledge.** A system should be able to fully address all the information needs of a client.
- **Observation and description of information.** This will help the organisation to determine *who* has *what* information. This process will also be able to determine how information and knowledge are used in work processes.
- **An ability to focus on people and information.** It is no use introducing or changing a system if it is not going to change the behaviour of the people who are required to make use of it (Davenport & Prusak, 1997:28-32).



From the issues raised above, it is clear that developing structural capital entails more than just creating a database and then expect employees to start using and expanding the organisation's structural asset. Deliberate and ongoing attempts have to be made to structure, develop and maintain structural capital.

The next section addresses some of the techniques to develop structural capital in the organisation.

### **3.10.1 Structuring organisational knowledge into useful structural capital**

To enhance the structural capital process in the organisation, the following basic knowledge activities must take place, namely:

- knowledge acquisition;
- information distribution; and
- information interpretation.

The acquisition of knowledge makes the ongoing development of structural capital possible. This process can make use of various sources and practical applications. The acquisition of knowledge can take place by means of books, journals, articles and e-products. This process also includes the capturing of the results of market research and competitive intelligence applications into an appropriate system in the organisation. In addition, the effective use of technology applications, such as intranets, e-mail and groupware tools can also facilitate the processes of information distribution and information interpretation to enhance the structural capital generating process (Davenport & Prusak, 1998:167; Porter, 1998:50; Hackett, 2000:13-19).

Additional activities, although not widely used, that can make a significant contribution towards maintaining and expanding an organisation's structural capital (SC) are the following:

- establishing best practices;
- creating a corporate memory system
- doing competitor analysis;

- establishing benchmarks;
- collecting lessons learnt; and
- experiencing simulations.

Each of these activities are discussed in more detail below.

### **3.10.2 Best practices**

This theory is derived from the understanding that the most effective method of capturing and making available best practice, can lead the organisation to world class performance. If best practice principles are not effectively applied, it can have the effect that world-class and mediocre performance can co-exist within the same organisation (Davenport & Prusak, 1998:167). The best practice enterprise also differs from other organisations with regard to the control of intangibles. These organisations are usually aware of intangibles critical for the development of structural capital. These organisations are furthermore expected to identify, measure, report, communicate and evaluate important intangibles in the organisation's management control process (Sanchez et al, 2000:315). To identify an organisation's best practices is not always easy. Difficulties in this regard are the following:

- Firstly, there can be a large gap between what a task looks like in a manual process compared to what it looks like in reality; and
- Secondly, there is often a gap between what employees think they do and what they are really doing (Sanchez et al, 2000:315).

It is therefore important when managers identify and foster best practices, that they need to pay close attention to practices as they occur in reality rather than as they are represented in documentation or process designs. Brown and Duguid (2000:79) points out that even when close attention is paid, it is still possible to miss the tacit knowledge produced during improvisation and innovation.

### 3.10.3 Corporate memory system

There seems enough justification to implement a corporate memory system to cultivate, enhance and expand structural capital. Information is however, of no value unless others can use it. Therefore, any effective corporate memory system must ensure that the information is available, searchable and reliable. It is important that the corporate memory system should be designed in such a way that it provides guidance on how things were done in the past. Corporate memory must also serve as a repository of knowledge and know-how from a group of individuals working in a particular organisation (Arora, 2002:240-249; Davenport, 1977:383; Demorest, 1977:33).

Four types of knowledge must be presented to enable a corporate memory system to function effectively, namely:

- descriptive knowledge;
  - behavioural knowledge;
  - methodological knowledge; and
  - non-formal annotations
- (Davenport, 1977:384; Arora, 2002:240-249).



It is important to remember that neither organisational nor individual learning develops from capturing information. The value of capturing information lies in the distribution of such information to others. If this process is done correctly, it will enhance the developing of structural capital.

### 3.10.4 Competitor analysis

In his research Porter (1998:48) describes competitor analysis as “to develop a profile of the nature and success of the likely strategy changes each competitor may make, each competitor’s probable response to the range of feasible strategic moves other firms could initiate and each competitor’s probable reaction to the array of industry changes and broader environmental shifts that might occur.”

The systematic study of competitors and other organisations is a recommended first step for new ventures, projects or strategic planning (Drew, 1997:428). Competitor analysis also provides valuable information to enhance the development of structural capital. The steps to execute the process of competitor analysis are briefly referred to:

In step one, all possible competitors are identified keeping in mind the organisation's vision and strategic vision. Step two would be to collect data and information about competitors in a systematic way. The next step is to catalogue information so that it is retrievable. As a last step, the analysed information is communicated to appropriate employees in the organisation (Drew, 1997:428-429).

According to Porter's model for competitor analysis (1998:73), the most obvious sources for competitor intelligence are:

- speeches by management;
- reports filed publicly;
- salesmen;
- the business press;
- customers;
- the organisation's web site;
- inspection of products; and
- analysis and estimates of the organisation's human capital.

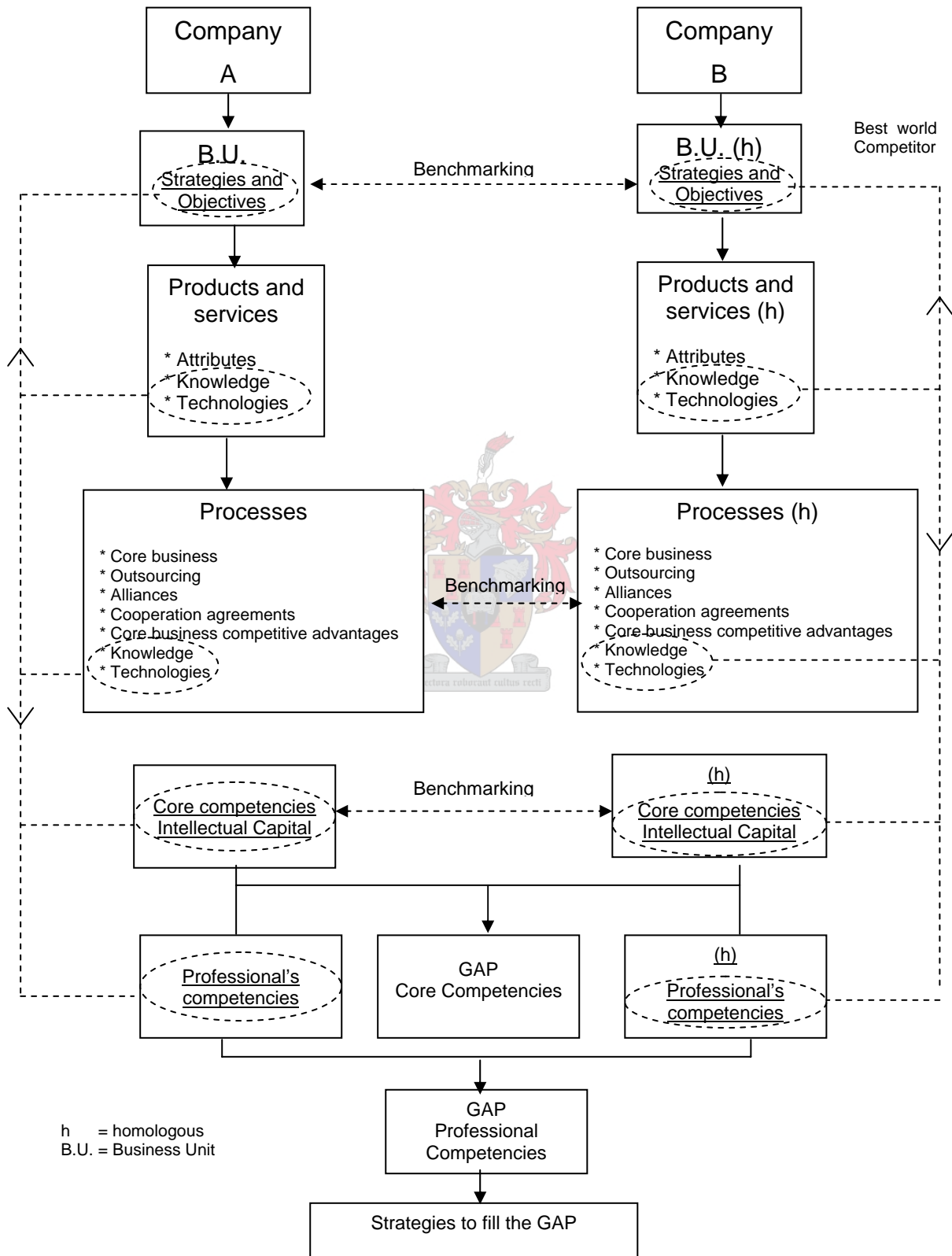


### **3.10.5 Benchmarking**

Benchmarking is used as a comparison basis in order to benchmark the world best competitors in the same business activity (Marti, 2001:150). For example, in the motor manufacturing industry, we will consider Toyota Japan as the best in class company. The relevant core competencies or the relevant intellectual capital will be according to Marti (2001:150) the model's constituents to benchmark.

In the figure below, an extensive IC benchmarking system is provided by Marti (2001:157).

Figure 10: Intellectual capital benchmarking system (Marti, 2001:157)



Drew (1997:429) advises that before embarking on a benchmarking endeavour, it is necessary to take note of the following:

- benchmarking must not be seen, in itself, as a strategy for achieving a competitive advantage in product or resource markets;
- benchmarking is not, per se, a technique to ensure organisational creativity; and
- benchmarking encompasses more than merely gathering competitor intelligence.

The value of benchmarking lies in the fact that it gives an indication of processes that need to be re-engineered and strategies and practices that need to be adapted. This in turn, can provide the necessary creativity for the maintaining and developing of structural capital.

### **3.10.6 Lessons learnt**

The value of a lesson learnt system as a structural capital enabler, lies in the sharing of work experiences with others. This will not only enable an individual to learn faster, but will also save the organisation money. This is because it is cheaper to learn from other employee experiences as well (Arora, 2002:240-249). The lessons learnt process is a systematic approach for identifying, validating, resolving, closing and sharing both positive and negative experiences or feedback. For the effective use of lessons learnt as a structural capital development mechanism, the following activities must take place, namely:

- progress meetings;
- requests for feedback
- status and completion reports;
- customer satisfaction surveys; and
- lessons learnt/post mortem meetings.

### **3.10.7 Simulations**

The classroom has been traditionally a dominant method of transferring knowledge. Today, with global operations, widely dispersed workplaces, and the continuing need

for updated information, the classroom has to be supplemented by various knowledge-transfer methodologies (Hackett, 2000:17). It seems that virtual reality and artificial intelligence systems can be very useful to build structural capital and transfer knowledge. Simulations and computer-based training can today be used for virtually any training need in organisations. The most important aspect is that simulations provide an alternative to the traditional classroom style of learning.

### **3.11 DEVELOPING CUSTOMER CAPITAL**

Within the context of this study, it is not a feasible option to discuss the various ways of developing customer capital. As indicated in the previous section under Customer Capital (p.33) this concept falls under the broader concept of market research and therefore falls outside the ambit of this study. This concept will only be briefly defined and discussed.

The key issues in managing customer capital are the following:

- informal forums where employees can share ideas need to be implemented;
  - knowledge sharing should be part of the employee's performance evaluation;
  - rewards should be aligned with knowledge sharing practices;
  - employees should be encouraged to record experiences; and
  - senior management should be involved in sharing knowledge
- (Ramosedi, 2000:79).

The methods to develop customer capital are branding, customer relationship and management. Customer capital also includes aspects like, 'e'-marketing, supplier relationship management and service management.

### **3.12 CONCLUSION**

The focus of this chapter was on the explanation and providing of practical knowledge of the following three components of IC, namely:

- human capital
- structural capital; and
- customer capital.

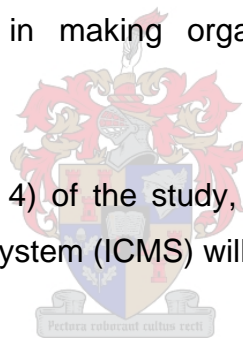
The fact that human, structural and customer capital are intertwined and function together, was discussed. To truly gain leverage from their knowledge base, organisations need to realise that IC implementation and development requires a constant interplay amongst human, structural and customer capital. This will enable organisations to initiate the IC realisation process that is discussed during the next phase of this study.

It is also evident from this chapter that without the development and continuous harnessing of specifically human capital, it will not be possible for organisations to successfully implement a comprehensive intellectual capital management system.

It was also determined that organisations will have to make use of IC entrepreneurs to enable them to generate and manage IC more effectively.

Lastly, the contribution of IC in making organisations more competitive, was highlighted.

During the next phase (Chapter 4) of the study, the practical implementation of an intellectual capital management system (ICMS) will be addressed.





# CHAPTER 4

## FORMULATING AND IMPLEMENTING A COMPREHENSIVE INTELLECTUAL CAPITAL MANAGEMENT APPROACH

### 4.1 INTRODUCTION

From the preceding chapters it is clear that organisations need to have practical knowledge of the management of knowledge and IC to be able to implement an IC management system.

In this chapter practical steps are provided on how to implement a comprehensive IC management system. To this end, an IC realisation process first has to take place for an IC management system to succeed.

The intellectual capital realisation process is implemented by, firstly, conveying the meaning and intent of this process to employees at all levels in the organisation. Secondly, the *realisation of the knowledge organisation* has to take place. This step usually involves certain structural changes that have to take place. The intellectual capital realisation process is also an important prerequisite before the actual implementation of an IC management system can take place. Subsequently, the social capital and culture realisation process, as discussed in this chapter, is crucial for any IC management system to be implemented and sustained.

### 4.2 INTELLECTUAL CAPITAL REALISATION PROCESS

The effectiveness of any new IC change or initiative that the organisation introduces, is directly influenced by the following factors:

- the operational context necessary to realise potential from the development of its IC;
- the vision of the organisation;
- its workforce; and
- the culture of the organisation (Herremans & Isaac, 2004:142-143; Stewart, 2001:55).

The forementioned factors will now be discussed in more detail in the following sectors.

### **4.3 REALISATION OF THE KNOWLEDGE ORGANISATION**

It seems, according to Stewart (1999:19), that if a business model is too rigid or formal, and with specific boundaries between levels and departments, it would defeat the objectives of any ICM process. The ideal business model to manage IC seems to be one with a flexible structure with few layers. A range of networks that include external partners and customers are proposed. The knowledge organisation model is based on the premise that IC is at the core of production, operation, and any critical organisational process (Stewart, 2001:55-56; Al-Ali, 2003:185).

Al-Ali (2003:186) states that “the knowledge organisation model should be seen as a stage of evolution in organisational development at which the organisation develops the knowledge resources of its employees and systems to respond to change quickly and effectively, with the end goal of becoming a leading organisation.”

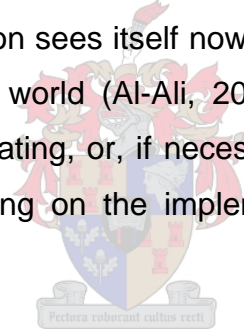
Before an organisation undertakes the implementation of an intellectual capital management process, it is suggested that certain prerequisites have to be met (Al-Ali, 2003:186; Stewart, 2001:55-56). These prerequisites are the following:

- A flatter structure where the number of layers that knowledge and information have to travel through are fewer than those in the traditional organisation;
- Creating the right culture for knowledge workers to be able to experiment and innovate;
- An information technology infrastructure that allows for the generation, collection, and sharing of knowledge across departmental and divisional boundaries;
- Flexible organisational boundaries between the organisation and external partners;
- A boundary-less structure to allow closer collaboration between departments and business units;
- Creation of appropriate positions in the organisation to enable workers to manage knowledge, innovation, and IC (Al-Ali, 2003:186; Stewart, 2001:55-56).

Harrison and Sullivan (2000:38) provide several questions that have to be answered before organisations will be able to manage their IC. These questions are:

- What objectives does the organisation want to achieve with IC?
- Do the IC activities integrate with the organisation's business strategy?
- What kind of IC activities are appropriate for the organisation?
- What kind of workforce must be involved with the IC process?
- Who will be responsible for extracting value from the organisation's IC?
- Is it the intention of the organisation to become an active user of IC?
- To what degree will the IC activities be centralised or decentralised?
- How many resources will be committed to the intellectual capital management process?

The vision statement of an organisation focus on the purpose of an organisation. It should reflect how the organisation sees itself now and in the future, and how it wants to be perceived by the outside world (Al-Ali, 2003:187; Sullivan, 1999:137). It is important to start with the formulating, or, if necessary, the amending of the vision of the organisation before embarking on the implementation of an intellectual capital management system.



#### **4.4 THE HUMAN CAPITAL REALISATION PROCESS**

From a strategic human resource management view, the first step is to determine what forms of human capital exist in the organisation and how this can be a source of competitive advantage. It is important to note that there are many assets individual employees bring to the organisation that are intangible. These assets are in the form of individual tacit knowledge rather than the more explicit, formal, routine and standardised knowledge (Garavan, et al, 2001:49; Perez & de Pablos, 2003:85). Value is added to organisations if personal knowledge is installed into knowledge management systems that the organisations create and use. With the human capital realisation process, learning is used as a strategic tool to generate knowledge in the form of products, processes, patents, services and the use of technology to capture knowledge (Marsick & Watkins, 1999:208).

The requirement to cultivate networks and gain access to other people's knowledge and resources is considered an important element of the realisation process in organisations. This process of gaining access to other people's knowledge and resources is referred to as social capital. This social capital process is, in turn, made possible by a culture realisation process in organisations. These two concepts will be addressed in the following section.

#### **4.5 SOCIAL CAPITAL AND ORGANISATIONAL CULTURE REALISATION PROCESS**

Karp (2003:26) points out that a lot of attention is placed on hard parameters such as knowledge management systems, controlling risks, defining measurement and accounting practices suitable for IC. He points out that these factors are important for successful management and development of IC. Karp (2003:26) however, argues that "the most important factor which needs to be in place for intellectual capital to become a valuable wealth creator in organisations, is something much more fundamental – this has to do with the soft issue of social capital." Nahapiet and Ghoshal (1988:242-243) argue that all new resources including IC, are created through two generic processes, namely: combination and exchange of existing intellectual resources, which may exist in the form of explicit and tacit capabilities. Karp (2003:26) is of the opinion that an organisation's social capital facilitates the development of IC by providing the ideal conditions for *exchange* and *combination* to take place. As Prusak and Cohan (2001:12) states: "Social capital is the stock of active connections among people: the trust, mutual understanding and shared values and behaviours that bind the members of human networks and communities and make cooperative actions possible. IC can be described as the skill to cultivate relationships in the workplace."

Rastogi (2000:193-203) describes social capital as the fundamental pre-requisite for intellectual capital to develop. Social capital is knowledge owned jointly by the parties to a relationship. There must be a shared vision and shared value system to make the development of IC a reality in organisations. Rastogi (2000:194-195) indicates that certain conditions of human capital must be present to enhance social capital. One of these conditions related to the clarity of the employee's understanding of the organisation's business context and the competitive logic of value creation. The other

condition relates to a pursuit of learning and managing knowledge to develop the organisation's competitive advantage (Rastogi, 2000:194-195). Social capital must provide the organisation with the necessary meaning and purpose to foster the basic collaboration and trust needed to develop relationships and knowledge sharing. This in turn, will lead to the development of IC.

There seems to be a strong relationship between an organisation's main purpose and basic values, and its sustained business performance (Karp, 2003:202). Karp (2003:27) is of the opinion that social capital provides the basis for IC to become the future wealth of most business organisations. As Karp (2003:27) states: "the really difficult challenge is, however, to develop the necessary organisational platform of social capital on which intellectual capital can grow."

Effective culture management seems to be a pre-requisite for organisations who would like to capitalise on IC as the future wealth of business. Culture management can be achieved by practicing the following principles:

- facilitating common interpretation systems;
- fostering values and norms among workers; and
- binding workers together (Karp, 2003:27; Rastogi, 2000:193-203).

Business leaders and managers will have to rethink how they view and determine the strategic direction of the organisation. Specific attention must also be given on how workers are managed.

The culture of an organisation should encourage and foster information and knowledge sharing as an activity that must form part of every worker's daily activities. Al-Ali (2003:190) indicates that this process requires more than simply incorporating knowledge sharing in the organisational culture. It requires a shift in perceiving knowledge sharing as a management, rather than a social activity.

From the foregoing discussion, it is clear that the way the organisation works internally, has a direct impact on how IC will be harnessed. Some of the factors to take into account in this regard are the following (Mayo, 2000:526):

- How are workers valued? Is it by the mistakes they make or is it primarily by their achievements?

- If mistakes are made by workers, is it seen as part of a learning process, or does the organisation look for someone to blame?
- Is innovation and experimentation encouraged or are workers restricted by means of rigid processes and policies?
- Are workers encouraged to share knowledge and access what others know?

#### **4.6 HOW TO HARNESS THE BOARD'S (TOP MANAGEMENT) INTELLECTUAL CAPITAL**

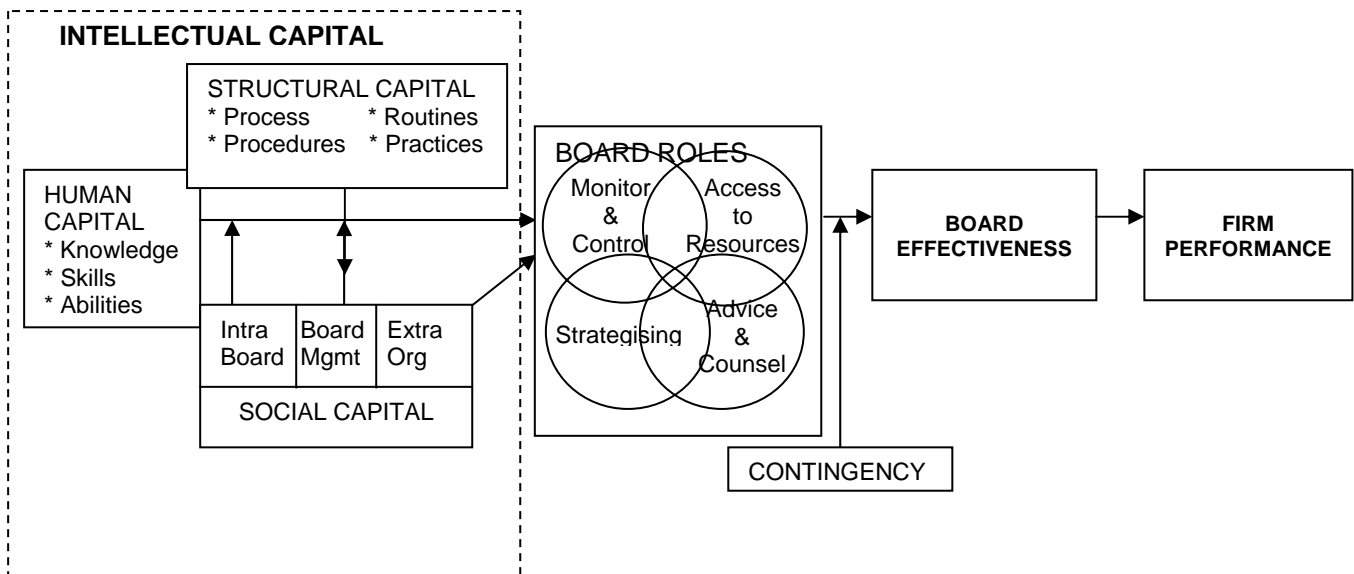
Human capital is often seen as the basis for all IC as Nicholson and Kiel (2003:8) states: "Intellectual capital is the raw intelligence of members is exogenous to the board and so forms the basis of the capacity for directors to act." The assumption can be made that a board's composition will determine its human capital and will have an impact on the board's activities and outcomes.

Nicholson and Kiel (2003:9) are of the opinion that human capital has the potential advantage of differentiating an organisation. The reason for this is that "skill differentiates between directors both in the types of skills that individuals possess, and the degree of skillfulness" (Nicholson & Kiel, 2004:9). The assumption can be made that there is a distinct heterogeneity in the skills set of the top-management (Board) of an organisation. The board's skills and human capital assets can therefore serve as a key source for competitive advantage and profit generation for an organisation.

It appears that the human capital of the board, namely its knowledge, skills and abilities, impacts on the effectiveness of the board.

Nicholson and Kiel provide an excellent explanation via a diagram on the following page. how to harness the IC of a board.

Figure 11 : Intellectual capital model of the board (Nicholson & Kiel, 2004:16)



#### 4.7 THE INTELLECTUAL CAPITAL MANAGEMENT SYSTEM (ICMS)

IC is today recognised as a key strategic asset for organisational performance. The management of IC is also critical for the competitiveness of organisations. The practical management of the IC process involves the following broad strategic issues according to Marr et al. (2003:772):

- identifying the key IC which drive the strategic performance of an organisation;
- visualising the value creation and transformation that IC will bring about;
- measuring performance and the effect of transformation brought about by IC; and
- cultivating IC by using knowledge management processes.

To make the practical implementation of IC possible, several factors have to be considered (Liebowitz & Suen, 2000:55-57; Harrison & Sullivan, 2000:38). These factors are:

- What objectives do the organisation want to achieve with their IC?
- What is the degree of integration of IC activities with the business strategy?
- What IC activities are appropriate for the organisation?

- What kind of employees and consultants should be involved with the organisation's intellectual capital management system (ICMS)?
- Who will be responsible to ensure that value is extracted from the ICMS?
- Is it the organisation's intention to be an active user of IC?
- To what extent will IC management activities be centralised or decentralised?
- What will be the amount of resources that will be committed to the management of IC?

Once the above questions have been addressed, the organisation will be in a position to move forward with the implementation of a comprehensive ICMS.

Various authors reported slightly different phases or steps for the implementation of an ICMS. These opinions by various authors have been integrated and slightly adapted to provide a practical guide for implementation of an ICMS. This is discussed in the following section.

#### **4.7.1 Implementation of an Intellectual Capital Management System (ICMS)**

##### **Step 1: Formulation of an IC Vision**

This process is extensively covered under 4.3 above. There are however, some practical points that need further discussion:

##### **Step 1.1: Formulation of the vision**

Vision formulation is an inward-looking exercise for the organisation that defines what it stands for. For an ICMS to work, the role of IC and knowledge in the future of the organisation has to be stressed (Al-Ali, 2003:199; Stewart, 2001:53).

##### **Step 1.2: Alignment of the vision with key employees**

The following has to be done to implement this step, namely:

- Form a team comprising of key employees who represent the various functional departments and/or business units.



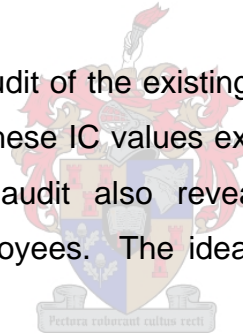
- Align the vision of the organisational leadership with that of the key employees by means of continuous meetings until consensus is reached (Al-Ali, 2003:199; Edvinsson, et al., 2000:264-265).

### Step 1.3: Communicate at all levels of the organisation

The most effective way to communicate an intellectual capital vision to all levels of the organisation is by means of regular meetings between key intellectual capital enablers (employees) and their subordinates. This will ensure that the IC vision is communicated, reviewed and updated. These meetings should be aimed at creating a shared IC vision, team building and collaboration at all levels (Edvinsson, et al., 2000:265; Roos & Roos, 1997:414-1417).

### Step 2: Cultural audit and transformation

It is important to undertake an audit of the existing cultural values in the organisation. This exercise will help to make these IC values explicit so that they can be effectively changed or maintained. An audit also reveals gaps between the values of management and those of employees. The ideal culture for an effective ICMS will represent the following values:



- collaboration and teamwork;
- knowledge sharing
- continuous learning;
- creativity and risk taking; and
- acceptance of failure (Al-Ali, 2003:200; Stewart, 2001:53-56).

The following steps can be undertaken to identify and install the required cultural values for the enhancing of IC.

### Step 2.1: Audit of cultural values

The aim of this step is to determine the organisation's current culture and to instill the required cultural values. The following actions must be undertaken:

- Compile an individual profile of the organisation's senior management structure; and
- undertaken an organisational value audit of the employees of each department to assess the need for cultural changes.

This exercise can be done with the use of individual questionnaires (Al-Ali, 2003:200; Bontis, 1998:70-73).

### Step 2.2: Effective cultural change on executive and departmental levels

Once the results of the IC audit are available, it is important to implement a number of steps to ensure that the correct cultural values are adopted, on both the executive and departmental levels. These steps are:

- On the executive level. Hold leadership and coaching sessions for senior management to mentor them into adopting the required set of values to enhance the ICMS.
- On the departmental level. Hold inter-departmental meetings to bring about the desired cultural values to enhance the ICMS (Bontis, 1998:70-73; Stewart, 2001:57).

### Step 2.3: Cultural change across the whole organisation

The following changes should be accommodated:

- include knowledge sharing as one of the duties in the job description of all positions.
- include knowledge sharing and collaboration as criteria in the appraisal of employee performance.

- reward and recognise KM and IC practices of individuals, groups and organisational meetings (Al-Ali, 2003:201).

### **Step 3: Intellectual capital audits**

Intellectual capital audits enable the assessment of the following:

- Available knowledge resources. This includes audits of tacit and explicit knowledge resources.
- Analysing audit findings. An effective benchmarking system will be needed to determine the state of the organisation's knowledge resources. An assessment of the levels of knowledge should equip management to assess the level of investment needed to fill the identified knowledge gaps (Edvinsson, 1997:370). Al-Ali (2003:204) describes knowledge gaps as "those deficiencies in knowledge resources that may affect the organisation's competitive performance adversely or limit its growth potential".



### **Step 4: Mapping of internal and external knowledge flows**

Knowledge networks and flows (also referred to as social networks) make the transferring and sharing of knowledge in the organisation possible. Maps of internal knowledge flows show who contacts whom for their knowledge and the frequency of contact (Al-Ali, 2003:206). Mapping external knowledge flows reveals the interaction with external parties in the value chain.

These knowledge maps aim to uncover and predict the following, namely:

- knowledge exchanges that support the business processes in a certain department;
- where sources of tacit knowledge is generated in the organisation;
- places in the organisation where knowledge sharing is not effective;
- how knowledge resources are acquired from outside the organisation (Al-Ali, 2003:206; Bontis, 1998:70-73).

Following the audit and the mapping of the knowledge flows exercise, top management should now formulate the appropriate knowledge strategies to fill the identified knowledge gaps and create new knowledge.

### **Step 5: Strategising for the intellectual capital management system**

Knowledge strategies are now identified to fill the identified knowledge gaps. The practical application of knowledge strategies that are referred to in chapter 3, are discussed in the following section:

#### **Step 5.1: Best practices**

The following practical applications can now be followed to benefit from the ability of best practices to generate IC and to assist with the implementation of an ICMS, namely:

- Submission of best practices to a review committee. The review committee must identify areas in the organisation where best practices can be identified and implemented. Define the criteria upon which a practice will be judged and put in place a reward system to enhance a culture of best practice. A portfolio of best practices must be generated to help formalise the process (Al-Ali, 2003:213; Stewart, 2001:60-61).
- Assessment, approval and dissemination of best practices:
  - perform an internal benchmarking exercise to determine whether the submitted practice is best;
  - assess if the practice can be replicated and implemented across the organisation;
  - upon approval of a best practice, disseminate it by placing it on the organisation's best practice database (Al-Ali, 2003:202-213).

## Step 5.2: Communities of Practice strategies (CoPs)

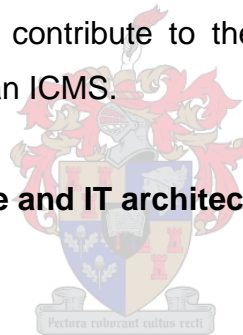
CoPs strategies are applied to create new knowledge through transfer of mainly tacit knowledge.

The following steps have to be undertaken to make the practical implementation of CoPs possible:

- Define the relationship between CoPs, the organisation's knowledge strategy, and the generating of IC.
- Form a CoPs committee to oversee the process in the organisation.
- The launching of CoPs in the organisation (Bontis, 1998:70-73; Edvinsson, 1997:370).

Only then will CoPs be able to contribute to the creation of tacit knowledge, and ultimately the implementation of an ICMS.

## Step 6: Intellectual capital base and IT architecture



The following steps apply:

### Step 6.1: Design the architecture

The architecture of the IC base is determined by the functions it serves in KM. The IC base must have the following four components:

- knowledge centres;
- e-learning centres;
- best practice database; and
- expert directories

(Al-Ali, 2003:214).

## Step 6.2: Design the IC centre

The purpose of the organisation's IC centre is to provide the knowledge resources that enhance critical business processes. To achieve this, the following steps have to be undertaken:

- Examine the knowledge resource that have to be applied during every step of the business process;
- Assess the tacit/explicit component of the knowledge resource needed to support the various steps in the business process;
- Group explicit knowledge resources into knowledge centres and allocate the responsibility of managing the content and creating new subject matter content, to subject matter experts; and
- Lastly, group personnel tacit resources, as discovered by the knowledge audit, into expert directories (Bontis, 1998:70-73; Edvinsson, 2000:263-266; Roos & Roos, 1997:414-417).

## 4.8 CONCLUSION

The focus of this chapter was on integrating the theoretical and practical applications of KM and IC, as outlined in the preceding chapters, into a comprehensive ICMS.

To this end, a practical explanation and guidelines for the application of the IC realisation process was provided. It is clear that if employees of an organisation do not apply the basic principles of the IC realisation process, that an ICMS will not be implemented and maintained successfully.

Subsequently, it was established that if the board (top management) of an organisation does not buy into the idea of harnessing IC, that any ICMS will eventually fail.

In summary, it is evident from this chapter that the implementation and successful usage of an ICMS is critical for the modern organisation's long term survival. An effective ICMS can prove to be critical for long term competitiveness of organisations.

# CHAPTER 5

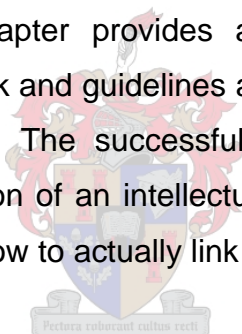
## CONCLUSION AND RECOMMENDATIONS

### 5.1 INTRODUCTION

This final chapter is used to provide a summarised overview of the literature study. Recommendations are made and areas for future research discussed. The limitations of this study are also pointed out.

### 5.2 SUMMARY OF THE LITERATURE STUDY

Chapter 2 highlights the impact of the knowledge economy on organisations. In order for organisations to survive in the future, they will have to form an integral part of the knowledge economy. This chapter provides an overview on how to manage knowledge. A practical framework and guidelines are provided for the management of knowledge in the organisation. The successful management of knowledge is a prerequisite for the implementation of an intellectual capital management system. A brief outline is also provided on how to actually link KM and IC in organisations.



Chapter 3 contains an analysis of the various capitals. Furthermore, specific guidelines are provided on the development of human capital. Without the constant development of human capital, the implementation of an intellectual capital management system (ICMS) is not possible. The role of the intellectual capital entrepreneur in modern organisations is explained.

In chapter 4 specific emphasis is given to the IC realisation process. This process encompasses the following: firstly, the realisation of the knowledge organisation; secondly, the human capital realisation process; and, thirdly, the social capital and culture realisation process. It will not be possible to implement and sustain an ICMS without the IC realisation process being implemented effectively in organisations. Practical guidelines are also provided to harness the IC of top management in organisations. Finally, step by step guidelines are provided in chapter 4 on how organisations can implement a comprehensive ICMS.

### **5.3 RECOMMENDATIONS**

The overall objective of this research assignment is to provide organisations with practical guidelines on how to formulate and implement a comprehensive intellectual capital management system. In order to achieve this objective, the following recommendations are made in this regard:

- As a point of departure, organisations must grasp the impact of the knowledge economy on current and future organisations;
- The successful management of knowledge is the basis for any long term generation of IC in organisations;
- As stated in chapter 1, very little seems to be written about the relationship between KM and IC. Specific guidelines must be provided to ensure that the linking of KM and IC takes place. This process is one of the prerequisites for the successful implementation of an ICMS;
- Organisations must ensure that employees understand the role of the various capitals, namely, human, social and structural capital;
- Guidelines must also be provided by organisations on how to develop the aforementioned three types of capitals;
- Organisational structures must make provision for the functioning of intellectual capital entrepreneurs. These individuals can play a very important role in the implementation and enhancing of an ICMS and future IC initiatives;
- A thorough understanding of the importance of the intellectual capital realisation process is required by organisations. The successful implementation of this process is a prerequisite for the implementation of a comprehensive ICMS;
- Finally, the implementation of an ICMS can only take place if specific steps, as outlined in chapter 4, are followed and implemented.

### **5.4 AREAS FOR FUTURE RESEARCH**

The following questions may serve as guidelines for future research in the fields of knowledge and intellectual capital management, namely:

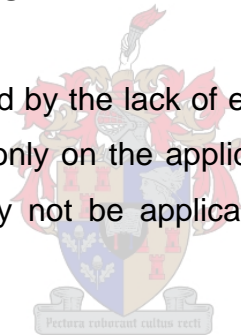
- What is the impact of the knowledge economy on South African organisations?



- Can a practical model and/or structure be developed to assist organisations to link KM and IC?
- How can organisations ensure that the various types of IC are developed and maintained on an ongoing basis in their respective organisations?
- What is the role and impact of the intellectual entrepreneur in *modern* organisations?
- How widely is the implementation of an intellectual realisation process taking place in South African organisations?
- To what extent is IC measured in South African organisations?
- What are the current, and anticipated effects of reporting IC on organisations?
- Is generating information on IC feasible from a cost perspective?
- Within an organisation, who is best positioned to measure and manage IC?

## 5.5 LIMITATIONS OF THE STUDY

The content of this study is limited by the lack of empirical research. Any assumption that is made is therefore based only on the applicable literature. This has the effect that the study will most probably not be applicable in all circumstances within the South African context.



The practical application of the ICMS falls outside the scope of this study. To this end, such a practical application could have enhanced the empirical validity of this study.

## 5.6 CONCLUSION

This study provides specific guidelines on how to harness the intellectual capital of an organisation.

This is achieved by providing the necessary theoretical information and practical application processes to make IC work for organisations.

## LIST OF SOURCES

- Ahmed, P.K., Lim, K.K., Zairi, M. 1999. Measurement practice for knowledge management. *Journal of Workplace Learning: Employee Counselling Today*, 11(8):304-311.
- Al-Ali, N. 2003. *Comprehensive Intellectual Capital Management*. New Jersey: John Wiley & Sons.
- April, K.A. 2002. Guidelines for developing a k-strategy. *Journal of Knowledge Management*, 6(5):445-456.
- Arora, R. 2002. Implementing KM – a balanced score card approach. *Journal of Knowledge Management*, 6(3):240-249.
- Bontis, N. 1998: Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, 36(2):66:76.
- Bontis, N. & Girardi, J. 1999. the knowledge toolbox: a review of the tools available to measure and manage intangible resources. *European Management Journal*, 17(4):391-402.
- Bontis, N. 1998: Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, 36(2):66-76.
- Bose, S. & Oh, K. 2003. An empirical evaluation of option pricing in intellectual capital. *Journal of Intellectual Capital*, 4(3):382-395.
- Brown, J.S. & Duguid, P. 2000. Balancing act: how to capture knowledge without killing it. *Harvard Business Review*, 78(3):73-80.
- Carroll, R.F. & Tansey, R.R. 2000. Intellectual capital in the new internet economy – its meaning, measurement and management for enhancing quality. *Journal of Intellectual Capital*, 1(4):296-312.
- Castonias, R.P. & Helfat, C.E. 2001. The managerial rental model: theory and empirical analysis. *Journal of Management*, 27(6):661-678.
- Chang, C.W., Holden, T., Withelmij, P., Schmidt, R.A. 2000. Where does knowledge management add value? *Journal of Intellectual Capital*, 1(4):366-380.
- Chen, H.M. & Lin, K.J. 2004. The role of human capital in Accounting. *Journal of Intellectual Capital*, 5(1):116-130.
- Connell, B., Young, E. 2000. Intellectual capital: current issues and policy implications. *Journal of Intellectual Capital*, 1(3):206-240.

- Cooper, D.R., Schindler, P.S. 2001. *Business Research methods*. 7<sup>th</sup> ed. Homewood, Illinois: Irwin McGraw-Hill.
- Coulson-Thomas, C. 1999. *Developing a Corporate Learning Strategy the Key Knowledge Management Challenge for the HR Function*. Bedford: Policy Publications.
- Coulson-Thomas, C. 2000. Individuals and enterprise: winning business in the new millennium. *Industrial and Commercial Training*, 32(3):84-88.
- Coulson-Thomas, C. 2001. Developing and supporting information entrepreneurs. *Career Development International*, 6(4):231-235.
- Das, S., Sen, D.K., Sengupta, S. 2003. Strategic alliances: A valuable way to manage intellectual capital? *Journal of Intellectual Capital*, 4(1):10-19.
- Davenport, T.H. & Prusak, L. 1997. *Information ecology: mastering the information and knowledge environment*. New York: Oxford University Press.
- Davenport, T.H. & Prusak, L. 1998. *Working knowledge: How organizations manage what they know*. Harvard Business School Press: Boston, MA.
- De Bruijn, S. 2001. CSIR Communities of practice: linking knowledge in knowledge-sharing groups: research report [unpublished].
- De Fillippi, R.J., Arthur, M.B. 1996. Boundaryless contexts and careers: a contemporary-based perspective. Arthur, M.B., Rousseau, D.M. *The Boundaryless Career*. New York: Oxford University Press.
- Demarest, M. 1997. Understanding knowledge management. *Long Range Planning*, 30(3):374-384.
- Drew, S.A.W. 1997. From knowledge to action: the impact of benchmarking on organizational performance. *Long Range Planning*, 30(3):427-441.
- Du Toit, A. 2002. Becoming a successful knowledge business. *RAU Rapport*, 35(1):22.
- Edvinsson, L. 1997. Developing intellectual capital at Skandia. *Long Range Planning*, 30(3):366-373.
- Edvinsson, L., Dvir, R., Roth, N., Pasher, E. 2004. Innovations: the new Unit of Analysis in the knowledge era. *Journal of Intellectual Capital*, 5(1):40-58.
- Edvinsson, L., Kitts, B., Beding, T. 2000. The next generation of IC measurement – the digital IC-landscape. *Journal of Intellectual Capital*, 1(3):263-272.
- Fere, C.R. & Castagnera, J.O. 2003. Should there be corporate concern? Examining American university intellectual property policies. *Journal of Intellectual Capital*, 4(1):49-60.

- Firer, S. & Williams, S.M. 2003. Intellectual capital and traditional measures of corporate performance. *Journal of Intellectual Capital*, 4(3):348-360.
- Garrick, J. & Clegg, S. 2000. Knowledge work and the new demands of learning. *Journal of Knowledge Management*, 4(4):279-286.
- Garavan, T.N., Morley, M., Gunniele, P., Collins, E. 2001. Human capital accumulation: the role of human resource development. *Journal of European Industrial Training*, 25(2/3/4):48-68.
- Grant, R.M. 1997. The knowledge-based view of the firm: implications for management practice. *Long Range Planning*, 30(3):450-454.
- Gupta, O. & Roos, G. 2001. Mergers and acquisitions through an intellectual capital perspective. *Journal of Intellectual Capital* 2(3):297-309.
- Gupta, O. & Roos, G. 2001. Mergers and acquisitions through an intellectual capital perspective. *Journal of Intellectual Capital*, 2(3):297-309.
- Guthrie, J., Johanson, U., Bush, P.N., Sánchez, P. 2003. *Intangibles and the transparent enterprise: new strands of knowledge*. *Journal of Intellectual Capital*, 4(4):429-440.
- Hackett, B, 2000. Beyond knowledge management: new ways to work and learn. *Conference Board Research Report*. 1262-00-PR. New York: Conference Board.
- Halal, W.E. 1998. *The infinite resource-creating and leading the knowledge enterprise*. San Francisco: Jossey-Bass.
- Harrison, S. & Sullivan, P.H. 2000. Profiting from intellectual capital. Learning from leading companies. *Journal of Intellectual Capital*, 1(1):33-46.
- Hellström, T. & Husted, K. 2004. Mapping knowledge and intellectual capital in academic environments. *Journal of Intellectual Capital*, 5(1):1469-1930.
- Herremans, I.M. & Isaac, R.G. 2004. Leading the strategic development of intellectual capital. *Leadership and Organisation Development Journal*, 25(2):142-160.
- Joia, L.A. 2000. Measuring intangible corporate assets. Linking business strategy with intellectual capital. *Journal of Intellectual Capital*, 1(1):68-84.
- Karp, T. 2003. Is intellectual capitalism the future wealth of organisations? *Foresight*, 5(4):20-27.
- Lank, E. 1997. Leveraging invisible assets: the human factor. *Long Range Planning*, 30(3):406-412.
- Lewis, J., Wright, P.C., Geroy, G.D. 2004. Managing human capital. *Managing Division*, 42(2):205-228.

Liebowitz, J. & Suen, C.Y. 2000. Developing knowledge management metrics for measuring intellectual capital. *Journal of Intellectual Capital*, 1(1):54-67.

Marr, B., Gupta, O., Pike, S., Roos, G. 2003. Intellectual capital and knowledge management effectiveness. *Management Division*, 41(8):771-781.

Marr, B. & Spender, J.C. 2004. Measuring knowledge assets – implications of the knowledge economy for performance measurement. *Measuring Business Excellence*, 8(1):18-27.

Marsick, V.J. & Watkins, K. 1999. Envisioning new organisations for learning. Boud, D., Garnick, J. *Understanding Learning at Work*. London: Routledge.

Marti, J.M.V. 2001. ICBS –Intellectual capital benchmarking system. *Journal of Intellectual Capital*, 2(2):148-165.

Martin, W.J. 2004. Demonstrating knowledge value: a broader perspective on metrics. *Journal of Intellectual Capital*, 5(1):77-91.

Måtersson, M. 2000. A critical review of knowledge management as a management tool. *Journal of Knowledge Management*, 4(3):204-216.

Mayo, A. & Lank, E. 1994: *The Power of learning: A guide to gaining competitive advantage*. London: Institute of Personnel and Development.

Mayo, A. 2000. The role of employee development in the growth of intellectual capital. *Personnel Review*, 29(4):521-538.

McConnachie, G. 1997. The management of intellectual assets: Delivering value to the business. *The Journal of Knowledge Management*, 1(1):56-62.

McGregor, J., Tweed, D., Pech, R. 2004. Human capital in the new economy: devil's bargain? *Journal of Intellectual Capital*, 5(1):153-164.

Mouton, J. 2001. *How to succeed in Master's & Doctoral Studies*. First edition. Pretoria: Van Schaik.

Nahapiet, J. & Ghoshal, S. 1998. Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review*, 23(2): 242-246.

Neely, A., Marr, B., Roos, G., Pike, S., Gupta, O. 2003. Towards the third generation of performance measurement. *Controlling*. 3/4 March/April: 61-67.

Nicholson, G.J. & Kiel, G.C. 2004. Breakthrough board performance: how to harness your board's intellectual capital. *Corporate Governance*, 4(1):5-23.

Nickerson, J.A. & Silverman, B.S. 1998. Intellectual capital management strategy: The foundation of new business generation. *Journal of Knowledge Management*, 1(4):320-331.

- Nonaka, L., Toyoma, R., Konno, N. 2000. SECI . ba and leadership: a unified model of dynamic knowledge creation. *Long Range Planning*, 33(1):5-34.
- Perez, J.R. & De Pablos, P.O. 2003. Knowledge management and organisational competitiveness: A framework for human analysis. *Journal of Knowledge Management*, 7(3):82-91.
- Perrin, S. 2000. *Managing Intellectual Capital to Grow Shareholder Value*. Bedford: Policy Publications.
- Petty, R. & Guthrie, J. 2000. Intellectual capital review. Measurement, reporting and management. *Journal of Intellectual Capital*, 1(2):155-176.
- Pòr, G. 1997. *Designing Knowledge Ecosystems for Communities of Practice*. Conference: Advancing Organisational Capability via Knowledge Management. Los Angeles:29-30 September.
- Porter, M.E. 1998: *Competitive strategy: Techniques for analyzing industries and competitors*. New York: Free Press.
- Preis, K.J. 2000. A two-stage process for eliciting and prioritizing critical knowledge. *Journal of Knowledge Management*, 4(4):328-336.
- Prusak, L. & Cohen, D. 2001. *In Good Company: How Social Capital Makes Organisations Work*. Harvard Business School Press: Boston.
- Ramosedi, A.M. 2000. *The management of tacit customer intellectual capital*. MBA Dissertation. WITS University.
- Rastogi, P.N. 2000. Sustaining enterprise competitiveness – is human capital the answer? *Human Systems Management*, 19:193-203.
- Robson, C.B.W. 2000. *The internal valuation of intellectual capital*. MBA Dissertation. WITS University.
- Roos, G. & Roos, J. 1997. Measuring your company's intellectual performance. *Long Range Planning*, 30(3):413-426.
- Roos, G., Bainbridge, A., Jacobsen, K. 2001. Intellectual capital analysis as a strategic tool. *Strategy & Leadership*, 29(4):21-26.
- Rowley, J. 1999. What is knowledge management? *Library Management*, 20(8):416-420.
- Rowley, J. 2002. Eight questions for customer knowledge management in e-business. *Journal of Knowledge Management*, 6(5):500-511.
- Sánchez, P., Chaminade, C., Alea, M. 2000. Management of intangibles – an attempt to build a theory. *Journal of Intellectual Capital*, 1(4):312-327.



- Seufert, A., Von Krogh, G., Bach, A. 1999. Towards knowledge networking. *Journal of Knowledge Management*, 3(3):180-190.
- Seufert, S. & Seufert, A. 1998. Collaborative learning in an inter-university learning network. *Informatik/Informatique*, 5:14-20.
- Snell, S.A., Lepak, D.P., Youndt, M.A. 1999. *Managing the architecture of intellectual capital: Implications for strategic human resource management*. Ferris, G.R. *Research in Personnel and Human Resources Management*, 4:175-193.
- Stewart, T.A. 1997. *Intellectual capital: the new wealth of organizations*. London: Nicholas Brealey .
- Stewart, T.A. 2001. *The Wealth of Knowledge*. First edition. London: Nicholas Brealey.
- Sullivan Jr, P.H. & Sullivan Sr, P.H. 2000. Valuing intangible companies – an intellectual capital approach. *Journal of Intellectual Capital*, 1(4):328-340.
- Sullivan, P.H. 1999. Profiting from intellectual capital. *Journal of Knowledge Management*, 3(2):132-143.
- Sveiby, K.E. 2000. Knowledge management the Viking way. [Http://www.sveiby.com.au/vikings.htm](http://www.sveiby.com.au/vikings.htm).
- Sveiby, K.E. 2001. A knowledge-based theory of the firm to guide in strategy formulation. *Journal of Intellectual Capital*, 2(4):344-358.
- Teece, D.J. 2000. *Managing Intellectual Capital: Organizational, Strategic, and Policy Dimensions*. Oxford: Oxford University Press.
- Terri, L.L.K. & Dallimore, P. 2004. Intellectual capital: Management attitudes in service industries. *Journal of Intellectual Capital*, 5(1):181-194.
- Thou, A.Z. & Fink, D. 2003. The intellectual capital web. A systematic linking of intellectual capital and knowledge management. *Journal of Intellectual Capital*, 4(1):34-48.
- Tyman, W.G. & Stumpf, S.A. 2003. Social capital in the success of knowledge workers. *Career Development International*, 8(1):10-20.
- uit Beijerse, R.P. 1999. Questions in knowledge management: defining and conceptualising a phenomenon. *Journal of Knowledge Management*, 3(2):94-110.
- Wenger, E.C. & Snyder, W.M. 2000. Communities of practice: the organizational frontier. *Harvard Business Review*, 78(1):139-145.
- Wiig, K. 1997. Integrating intellectual capital and knowledge management. *Long Range Planning*, 30(3):399-405.

Wiig, K. 1997. *Leveraging knowledge for business performance: the proceedings of the first South African knowledge management conference*. Wits Business School: Johannesburg.

Wiig, K. 1997. Knowledge management: An Introduction and Perspective. *The Journal of Knowledge Management*, 1(1):6-14.

Yahya, S. & Goh, W. 2002. Managing human resources toward achieving knowledge management. *Journal of Knowledge Management*, 6(5):457-468.

Zickner, E. 1996. *Intellectual capital management in service organizations*. MBA Dissertation. WITS University.

