

**The use of stories and storytelling
as knowledge sharing practices:
a case study in the South African mining industry**

By

Peter Kevin Joseph Tobin

**Submitted in partial fulfilment
of the requirements for the degree
Doctor Philosophiae (Information Science)
in the Faculty of Engineering, Built Environment
and Information Technology,
University of Pretoria, Pretoria**

April 2006

23e Summerside Place
Main Street
Gullane
East Lothian
EH31 2AW
Scotland UK

To Whom It May Concern:

Language Editor Letter

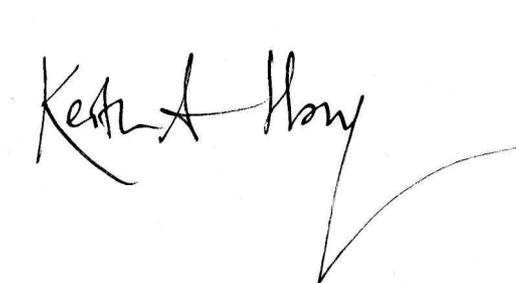
This letter serves to confirm that I, Keith Archibald Hay, [ID number: 7202295753185], have acted as the final language editor for this thesis authored by Mr Peter K J Tobin.

This has been to ensure that, where possible, punctuation, grammar and phrasing conform to the accepted language rules.

This also confirms that I possess an MA Honours degree in English Literature and History, from the University of Edinburgh, conferred in 1994.

I can be contacted either at the above address, or through email at needle.haystack@virgin.net. Phone contact may be had on +44 1620 842583.

I would be happy to answer any queries that you have.

A handwritten signature in black ink that reads "Keith Archibald Hay". The signature is written in a cursive style with a long, sweeping underline that extends to the right.

KEITH ARCHIBALD HAY

MA Hons (Edin)

Abstract

The use of stories and storytelling as knowledge sharing practices:
a case study in the South African mining industry

By

Peter Kevin Joseph Tobin

Supervisor: Prof. Dr. M.M.M. Snyman

Department: Department of Information Science, Faculty of Engineering, Built
Environment and Information Technology, University of Pretoria, Pretoria

Degree: Doctor Philosophiae (Information Science)

A great deal has been written in the management literature concerning the field of knowledge management. Some of that literature has focused on the use of stories and storytelling, including for the sharing of knowledge. However, the field of knowledge management is relatively immature in South Africa. In particular within that field, there is not a clear understanding of the use of stories and storytelling for knowledge sharing within the country. The purpose of the study was to improve that understanding through research into a case study within the South African mining industry, with a focus on world-class performance. To assist in the performance evaluation of the case study organisation, a framework for world-class performance was developed and used as an analytical tool in conjunction with a research instrument that was based on the findings of the non-empirical research into the fields of knowledge management and stories and storytelling. The empirical research then focused on the activities of a particular community of practice within the case study organisation and sought to understand the way in which stories and storytelling were used to support the sharing of knowledge in the organisation, as a contributor to world-class performance.

Whilst conducting the empirical research, assessment and analysis, it was identified that the case study organisation made use of a number of practices and tools to support the use of stories and storytelling, in particular graphical representations (storyboards) of the stories to complement their oral delivery. The analysis of the case

study data indicated that a significant opportunity existed to improve the extent of world-class performance for the use of stories and storytelling and a number of recommendations were made in that regard.

Keywords

Capability maturity model; case study; community of practice; knowledge; knowledge management; knowledge sharing; stories; storyboards; storytelling; world-class performance.

Opsomming

Heelwat literatuur is al gepubliseer oor die onderwerp kennisbestuur, en van dié literatuur fokus op die gebruik van stories en storievertelling, insluitend vir die deel van kennis. Die veld kennisbestuur is egter relatief jonk in Suid-Afrika, en veral die gebruik van stories en storievertelling vir die deel van kennis. Die doel van die studie was om 'n beter begrip te verkry met behulp van gevallestudie navorsing in die Suid-Afrikaanse mynbedryf, met die fokus op wêreldklas prestasie. Ter ondersteuning van die prestasie evaluering van die gevallestudie organisasie, is 'n raamwerk vir wêreldklas prestasie ontwikkel om gebruik te word as 'n analitiese hulpmiddel in samewerking met 'n navorsingsinstrument wat gebaseer is op die bevindings van die nie-empiriese navorsing in die velde, kennisbestuur en stories en storievertelling.

Dié empiriese navorsing fokus op die aktiwiteite van 'n spesifieke kennisgilde binne die gevallestudie organisasie, asook die verskillende maniere waarop stories en storievertelling gebruik word in die deel van kennis in die organisasie wat dan bydra tot wêreldklas prestasie. Gedurende die empiriese navorsing analise is daar gevind dat die gevallestudie organisasie wel gebruik maak van verskeie praktyke en hulpmiddels om die gebruik van stories en storievertelling te ondersteun, veral grafiese voorstellings (storieborde) van stories om hul verbale vertellings te komplimenteer.

Die analise van die gevallestudie data het aangedui dat daar wel geleentheid bestaan waardeur die omvang van wêreldklas prestasie verbeter kan word in die gebruik van stories en storievertelling en verskeie aanbevelings is gemaak na aanleiding van die bevindings.

Sleutelwoorde

Bekwaamheidsmodel, Gevallestudies, Kennis, Kennisbestuur, Kennisdeling, Stories, Storieborde, Storievertelling, Wêreldklas prestasie, Kennisgildes

Acknowledgement

Special thanks must go to:

- Professor Doctor M.M.M. Snyman: for her advice and guidance throughout my research
- Kumba Resources: to all those involved with the organisation who supported this research
- The GIBS Information Centre and Copy Centre teams: for providing excellent service and support
- Ingrid, Sarah and Caroline: for their support and encouragement on this long journey of discovery
- To all those other friends and colleagues too numerous to mention: thanks for your advice, guidance, encouragement and support during this research.

Table of Contents

Language Editor Letter	ii
Abstract	iii
Keywords	iv
Opsomming	iv
Sleutelwoorde	v
Acknowledgement	v

1	Introduction to the research report	
1.1	Introduction	1-1
1.2	Background to the research	1-1
1.3	Context of the research	1-3
1.4	Motivation for the research	1-4
1.5	Problem statement	1-5
1.5.1	Sub-problem 1	1-5
1.5.2	Sub-problem 2	1-5
1.5.3	Sub-problem 3	1-5
1.5.4	Sub-problem 4	1-5
1.5.5	Sub-problem 5	1-6
1.6	Overall research design	1-6
1.7	Abbreviations	1-7
1.8	Research report chapter layout	1-8
1.8.1	Chapter 2	1-8
1.8.2	Chapter 3	1-9
1.8.3	Chapter 4	1-9
1.8.4	Chapter 5	1-9
1.8.5	Chapter 6	1-10
1.8.6	Chapter 7	1-10
1.8.7	Chapter 8	1-11
1.9	Summary	1-11
2	Knowledge and knowledge management	
2.1	Introduction	2-1
2.2	What is knowledge?	2-1
2.2.1	Knowledge definition	2-1
2.2.2	Knowledge as a resource	2-5
2.3	What is knowledge management?	2-6
2.3.1	Knowledge management definition	2-6
2.3.2	Knowledge management objectives	2-9
2.3.3	Knowledge management success factors	2-11
2.3.4	Knowledge management models and frameworks	2-14
2.3.5	Knowledge management processes and sub-processes	2-21
2.3.6	Knowledge management roles	2-25
2.3.7	Knowledge management practices and tools	2-28
2.4	Knowledge management and strategy	2-33
2.4.1	Relationship between knowledge management strategy and	2-34

	business strategy	
2.4.2	Approaches to knowledge management strategy	2-36
2.4.3	Selecting a knowledge management strategy	2-40
2.4.4	Contents of a knowledge management strategy	2-41
2.4.5	Knowledge management strategy implementation	2-42
2.5	Summary	2-44
3	Stories and storytelling	
3.1	Introduction	3-1
3.2	The nature of stories and storytelling	3-1
3.2.1	The origins and definition of stories and storytelling	3-1
3.2.2	Story formats	3-4
3.2.3	The structure of stories	3-6
3.3	The use, benefits and pitfalls of stories and storytelling	3-8
3.3.1	The uses of stories in organisations	3-8
3.3.2	Benefits of the use of stories and storytelling	3-12
3.3.3	Pitfalls in the use of stories and storytelling	3-15
3.4	Models for the use of stories and storytelling	3-17
3.4.1	Review of models	3-17
3.4.2	Story-crafting	3-19
3.4.3	Story-telling	3-20
3.4.4	Story-listening	3-22
3.5	Implementing the use of stories and storytelling	3-23
3.6	Summary	3-26
4	World-class performance	
4.1	Introduction	4-1
4.2	World-class performance	4-2
4.2.1	What is world-class performance?	4-3
4.2.2	World-class performance and knowledge management	4-7
4.2.3	World-class performance summary	4-8
4.3	Best practices	4-9
4.3.1	Background to best practices	4-9
4.3.2	Challenges of best practices	4-12
4.3.3	Best practices and knowledge management	4-14
4.3.4	Best practices summary	4-15
4.4	Benchmarking	4-16
4.4.1	Background to benchmarking	4-16
4.4.2	Challenges of benchmarking	4-18
4.4.3	Benchmarking and knowledge management	4-19
4.4.4	Benchmarking summary	4-21
4.5	Standards	4-21
4.5.1	Background to standards	4-21
4.5.2	Challenges of standards	4-23
4.5.3	Standards and knowledge management	4-23
4.5.4	Standards summary	4-26
4.6	Quality management	4-26
4.6.1	Background to quality management	4-26
4.6.2	Challenges of quality management	4-29
4.6.3	Quality management and knowledge management	4-29

4.6.4	Quality management summary	4-30
4.7	Capability Maturity Models	4-31
4.7.1	Background to Capability Maturity Models	4-31
4.7.2	Challenges of Capability Maturity Models	4-35
4.7.3	Capability Maturity Models and knowledge management	4-37
4.7.4	Capability Maturity Models summary	4-40
4.8	Summary	4-41
5	Research methodology	
5.1	Introduction	5-1
5.2	Research philosophy	5-1
5.3	Research approaches	5-3
5.3.1	Non-empirical / empirical research	5-3
5.3.2	Qualitative / Quantitative approach	5-5
5.3.3	Deductive / Inductive	5-6
5.3.4	Subjective / objective	5-7
5.4	Research design or strategy	5-7
5.4.1	Research design alternatives	5-8
5.4.2	Case study research overview	5-9
5.4.3	Selection of the case study organisation	5-12
5.4.4	Case research data methods	5-15
5.5	Summary	5-25
6	Data findings	
6.1	Introduction	6-1
6.2	Profile of the case study organisation	6-1
6.2.1	Establishment of Kumba Resources	6-1
6.2.2	Kumba Resources corporate vision and values	6-2
6.2.3	Kumba Resources business strategy	6-3
6.2.4	The Kumba Way	6-4
6.2.5	Kumba Resources operations overview	6-6
6.2.6	Performance indicators at Kumba Resources	6-12
6.3	Knowledge Management at Kumba Resources	6-17
6.3.1	Role of knowledge management in the Kumba Resources business strategy	6-18
6.3.2	Development of the knowledge management function at Kumba Resources	6-19
6.3.3	Kumba Resources knowledge management team initiatives	6-19
6.3.4	Importance of the Community of Practice to the Kumba Resources knowledge management approach	6-22
6.3.5	Continuous Improvement Community of Practice (CICOP)	6-24
6.4	Findings of the assessment of knowledge sharing and storytelling maturity in the CICOP	6-27
6.4.1	Knowledge sharing maturity in the CICOP	6-27
6.4.2	Stories and storytelling maturity in the CICOP	6-28
6.5	Findings on the use of storytelling for the sharing of knowledge in the CICOP at Kumba Resources	6-30
6.5.1	Corporate services divisions	6-30
6.5.2	Sishen iron ore mine	6-37
6.5.3	Thabazimbi iron ore mine	6-43

6.5.4	Grootegeeluk coal mine	6-50
6.5.5	Leeuwpan coal mine	6-60
6.5.6	Tshikondeni coal mine	6-63
6.5.7	Rosh Pinah zinc mine	6-66
6.5.8	Zincor refinery	6-67
6.5.9	Glen Douglas dolomite mine	6-74
6.6	Summary	6-74
7	Analysis of findings	
7.1	Introduction	7-1
7.2	Analysis of Kumba Resources	7-1
7.2.1	Kumba Resources organisation level analysis	7-1
7.2.2	World-class performance in Kumba Resources	7-2
7.2.3	Role of knowledge management in the Kumba Resources business strategy	7-5
7.2.4	Importance of knowledge sharing in Kumba Resources	7-6
7.3	Analysis of Kumba Resources knowledge management function	7-7
7.3.1	Objectives and activities	7-7
7.3.2	World-class performance in Kumba Resources knowledge management function	7-10
7.4	Analysis of the Kumba Resources CICOP	7-13
7.4.1	Objectives and activities	7-13
7.4.2	World-class performance in Kumba Resources CICOP	7-15
7.4.3	Maturity of knowledge sharing in Kumba Resources CICOP	7-17
7.5	Analysis of the use of stories and storytelling in the CICOP	7-22
7.5.1	Overview of the use of stories and storytelling in CICOP	7-22
7.5.2	Ownership of stories and storytelling	7-23
7.5.3	Executive sponsorship of the use of stories and storytelling	7-25
7.5.4	Objectives for stories and storytelling	7-26
7.5.5	Funding of stories and storytelling	7-28
7.5.6	Tools for stories and storytelling	7-28
7.5.7	Training and education for stories and storytelling	7-30
7.5.8	Measures of stories and storytelling	7-31
7.5.9	Success stories of the use of stories and storytelling	7-32
7.5.10	Benchmarking internally or externally	7-33
7.5.11	Reward and recognition for use of stories and storytelling	7-35
7.5.12	Stories and storytelling model	7-35
7.5.13	Capture and reuse of stories	7-41
7.5.14	Catalogue of stories maintained	7-42
7.5.15	Use of stories and storytelling internally and externally	7-43
7.5.16	Role of technology in stories and storytelling	7-44
7.5.17	Understanding of where not to use stories and storytelling	7-46
7.5.18	Stories and storytelling community of practice	7-47
7.5.19	Stories and storytelling value rating scale	7-48
7.5.20	Summary of the use of stories and storytelling in CICOP	7-49
7.6	Summary	7-50
8	Conclusions and recommendations	
8.1	Introduction	8-1

8.2	Answering the research problem	8-1
8.2.1	Main research problem	8-1
8.2.2	Research sub-problem 1	8-2
8.2.3	Research sub-problem 2	8-3
8.2.4	Research sub-problem 3	8-4
8.2.5	Research sub-problem 4	8-5
8.2.6	Research sub-problem 5	8-7
8.2.7	Answering the overall research problem	8-8
8.3	Recommendations	8-8
8.3.1	Ownership of stories and storytelling	8-9
8.3.2	Executive sponsorship of the use of stories and storytelling	8-10
8.3.3	Objectives for stories and storytelling	8-10
8.3.4	Funding of stories and storytelling	8-10
8.3.5	Tools to be used for stories and storytelling	8-11
8.3.6	Training and education for stories and storytelling	8-11
8.3.7	Measures of stories and storytelling	8-12
8.3.8	Success stories of stories and storytelling	8-12
8.3.9	Benchmarking internally or externally	8-13
8.3.10	Reward and recognition for use of stories and storytelling	8-13
8.3.11	Storytelling model	8-14
8.3.12	Capture and reuse of stories	8-14
8.3.13	Catalogue of stories maintained	8-15
8.3.14	Use of stories and storytelling internally and externally	8-15
8.3.15	Role of technology in stories and storytelling	8-15
8.3.16	Understanding of where not to use stories and storytelling	8-16
8.3.17	Stories and storytelling community of practice	8-16
8.3.18	Stories and storytelling value rating scale	8-16
8.3.19	Summary of recommendations	8-17
8.4	Recommendations for further research	8-17
8.4.1	World-class performance framework	8-17
8.4.2	Expansion of the research base	8-20
8.5	Summary	8-21
9	Bibliography	9-1
10	Appendix	
	Appendix 1: Research template	A1-1
	Appendix 2: Continuous Improvement maturity model	A2-1
	Appendix 3: Storyboard profiles	A3-1
	List of Tables	
Table 2.1	Knowledge definitions	2-3
Table 2.2	Knowledge management definitions	2-7
Table 2.3	Objectives for knowledge management initiatives	2-10
Table 2.4	Knowledge management success factors	2-13
Table 2.5	Knowledge management processes and sub-processes listing	2-23
Table 2.6	Integrated list of processes/sub-processes	2-23
Table 2.7	Consolidated list of knowledge management practices	2-29
Table 2.8	Consolidated list of knowledge management tools	2-30
Table 2.9	Knowledge management strategies	2-36

Table 2.10	Strategic implementation matrix	2-38
Table 2.11	Generic strategies model	2-39
Table 2.12	Knowledge management strategy selection	2-40
Table 2.13	Knowledge management strategy implementation steps	2-43
Table 3.1	Story formats	3-5
Table 3.2	Structure of stories	3-7
Table 3.3	Uses of stories and storytelling	3-11
Table 3.4	Benefits of the use of stories and storytelling	3-14
Table 3.5	Models for storytelling	3-17
Table 3.6	Stories and storytelling implementation issues	3-25
Table 4.1	Forms of benchmarking	4-17
Table 4.2	Crosby's Quality Management Maturity Grid	4-28
Table 4.3	CMM level definitions	4-32
Table 4.4	Continuous and staged representation comparison	4-34
Table 4.5	Selected continuous and staged representation comparative advantages	4-35
Table 5.1	Research paradigms	5-2
Table 6.1	Locations and product types	6-7
Table 6.2	Membership of the CICOP	6-25
Table 6.3	Structured interview topics (knowledge sharing)	6-28
Table 6.4	Structured interview topics (storytelling)	6-29
Table 7.1	Consolidated list of sources for knowledge sharing issues	7-18
Table 7.2	Objectives for the use of stories and storytelling in the CICOP	7-27
Table 7.3	Story characteristics according to BSI (2003a)	7-37
Table 7.4	Story characteristics according to Parkin (2004)	7-37

List of Figures

Figure 2.1	SECI Model	2-19
Figure 2.2	Strategic gap model	2-37
Figure 4.1	World-class performance framework	4-2
Figure 4.2	Service performance and practice matrix	4-5
Figure 5.1	Research philosophy alternatives	5-1
Figure 5.2	Research design alternatives	5-8
Figure 5.3	Choice of case study type	5-12
Figure 6.1	Kumba Resources group operational structure	6-6
Figure 6.2	Participation in maturity assessment interviews	6-27
Figure 6.3	Kumba Way storyboards	6-36
Figure 6.4	Sishen mine original storyboard	6-42
Figure 6.5	Sishen mine revised storyboard 2004	6-42
Figure 6.6	Thabazimbi mine storyboard	6-49
Figure 6.7	Grootegeeluk mine storyboard	6-57
Figure 6.8	Grootegeeluk mine storyboard	6-58
Figure 6.9	Grootegeeluk mine storyboard	6-59
Figure 6.10	Grootegeeluk mine marula tree storyteller	6-59
Figure 6.11	Zincor Zimisele project storyboard	6-73
Figure 6.12	Zincor corporate storyboard	6-73

1 Introduction to the research report

1.1 Introduction

The objective of this chapter is to serve as an overall introduction to the research report. This chapter will allow the reader to gain a high level understanding of the background to the research, the focus of the research, how the research was conducted and the structure of the research report.

This chapter provides the background and context against which the research was conducted and then provides the motivation for the research which was undertaken. This includes the presentation of the research problem. The overall research design is then presented and abbreviations used in the research report are detailed. The chapter concludes with an overview of the overall layout of the research report giving a high-level view of the contents of each chapter.

1.2 Background to the research

The background to this research project is comprised of three main aspects. The first of those aspects is the growth of interest that has taken place over the last ten to fifteen years in the subject area of knowledge management (Davenport and Glaser, 2002). Over that period there has been a virtual explosion in interest in the field of knowledge management, as role players and stakeholders have sought to understand the relevance and importance of knowledge management and its relationship to organisational performance. This, in turn, has led to the publication of many books and articles on virtually every aspect of knowledge management (Davenport and Prusak, 1998; Leonard, 1995; Nonaka, 1991; Nonaka and Takeuchi, 1995; Stewart, 1997).

Many different views have emerged as to the nature of knowledge and knowledge management (BSI, 2003b; SAI, 2001) and possible objectives for knowledge management, what they are and how to leverage the possibilities of managing

knowledge as a resource. One particular aspect of knowledge management is the way in which knowledge may be shared (or as some use the term, transferred) between individuals, groups and organisations (Dixon, 2000; Nonaka and Konno, 1998; O'Dell and Grayson, 1998; Sveiby, 2001).

The second aspect of the background to this research concerns the use of stories and storytelling as a knowledge management practice. Part of the search for an improved understanding of how to share knowledge has led to the suggestion that the use of stories and storytelling may provide a powerful practice as part of efforts by individuals, groups and organisations to share what they know. Just as knowledge and knowledge management have been widely discussed, so the issue of the use of stories and storytelling as part of an overall knowledge management strategy has been widely commented on in the literature and by practitioners (Boyce, 1995; Brown and Duguid, 2000a; Denning, 2000; Snowden, 1999a). It has been suggested that the use of stories and storytelling to share knowledge represents a great opportunity to leverage a traditional means of communication and there are a number of examples of how this has been achieved, or how stories might be used, that have been reported over a number of years (Hansen and Kahnweiler, 1993; Kaye and Jacobson, 1999; Sole and Wilson, 2002).

The third aspect of the background to this research is the ever present context of globalisation and the extent to which organisations are faced with the challenges and opportunities associated with taking part in a global business environment. Globalisation has, in turn, prompted many organisations to question the basis on which they can compete both locally and internationally against the best in the world (Faulkner, 2000; Voss, Blackmon, Chase, Rose and Roth, 1997; Waldron, 1999). The growing awareness of the pressure placed upon organisations by their global competitors raises the topic of how to achieve, measure and sustain world-class performance.

It is these three aspects taken together which provide the background to this research project: an understanding of the nature of knowledge management; the potential for the use of stories and storytelling as a practice for sharing knowledge, and the ability

to leverage knowledge, knowledge management and stories and storytelling as part of an overall approach to world-class performance.

1.3 Context of the research

The context in which this research project was conducted had a number of aspects. The first aspect was geographic: the research was conducted in South Africa. At the time that this research project was undertaken (during 2004) South Africa, as a country, was approaching its 10th anniversary as a new democracy, and over the years since the first democratic election was held in 1994, many South African-based organisations had found themselves faced with the opportunity to measure themselves against competitors in a world market which had, prior to 1994, been in many cases partly or wholly denied to them. The post-1994 re-entry of South Africa into the global community prompted a renewed focus on the ability to survive and thrive both within the borders of the country as well as on the international stage.

The second aspect of the context of this research was that it was conducted with the co-operation of a company that operates in the South African mining industry. This industry has traditionally provided a significant source of revenue for the country as well as employment for those working in the industry. However, over recent years, the ability of companies to compete had been influenced by a number of factors (financial, technological, logistical, market-related), which presented both opportunities and threats to organisations operating in the industry.

The third aspect of the context of the research was that this was conducted as a case study investigation into aspects of one particular organisation, Kumba Resources (a company listed on the Johannesburg Stock Exchange and with interests in South Africa as well as a number of other countries), and within that organisation, a particular community of individuals operating across a large proportion of the South African operational locations of the business.

These aspects combined, when positioned against the overall background to the research (as discussed in section 1.2), provide the context against which the research

project was conducted.

1.4 Motivation for the research

Although there has been extensive discussion in the literature regarding the use of stories and storytelling as part of a knowledge management strategy, there has been no formal academic research identified which has been conducted within the context of South Africa, specifically within the mining industry.

Knowledge management is an important issue to organisations (APQC, 2000; BSI, 2003a; de Jager, 1999; Denning, 2000, 2001, 2002, 2004a, 2004b; Liebowitz and Chen, 2004; O'Dell and Grayson, 1998; Snowden, 1999a, 2000b, 2000c), as is the opportunity to share knowledge. When combined with the potential benefits of using stories and storytelling as a practice for sharing knowledge, research into this field appeared to be justified. In addition, depending upon the nature of the research findings, the research may have a significant impact on how knowledge can be shared not only within one organisation (Kumba Resources) or within one industry (the mining industry) but potentially across many industries within the country and within many countries in the world.

The research project offered the potential to better understand the use of stories and storytelling to share knowledge, and to explore the extent to which stories and storytelling may already be in use in the case study organisation; and if so, in what way, as a contributor to world-class performance.

The motivation was therefore at three possible levels: to contribute to the understanding, from an academic perspective, of the nature of the use of stories and storytelling as knowledge sharing practices; to assist the case study organisation in gaining a deeper understanding of its own situation, and to provide valuable learning points which could have a positive impact within both the industry in which Kumba Resources operates as well as the country as a whole.

1.5 Problem statement

The main research problem of the thesis is: “To gain an understanding of the potential of stories and storytelling as knowledge sharing practices to enhance world-class performance in a specific environment.”

To address the main research problem a number of sub-problems were identified:

1.5.1 Sub-problem 1

What can be learned from a non-empirical investigation into knowledge management as a context for the research project?

1.5.2 Sub-problem 2

What can be learned from a non-empirical investigation into the use of stories and storytelling as knowledge sharing practices as part of a knowledge management strategy as a context for the research project?

1.5.3 Sub-problem 3

What can be learned from a non-empirical investigation into the nature of world-class performance as a context for the research project?

1.5.4 Sub-problem 4

What can be learned from the use of stories and storytelling to share knowledge as part of a knowledge management strategy within the case study organisation?

1.5.5 Sub-problem 5

How might the performance of the organisation, in terms of the use of stories and storytelling, be enhanced as a result of the application of the findings from the non-empirical research combined with the findings of the empirical research?

1.6 Overall research design

The overall research design was constructed having evaluated a number of possibilities in terms of how the research would be conducted. Having evaluated the context, motivation and problem for the research, it became clear that the overall research philosophy (Easterby-Smith, Thorpe and Lowe, 1991; Hussey and Hussey, 1997; Saunders, Lewis and Thornhill, 2000) to be applied in this research project would be phenomenological rather than positivist.

It was decided to combine both a non-empirical approach as well as an empirical approach in addressing the research problem (Hussey and Hussey, 1997; Saunders *et al.*, 2000). It also became clear, as the research design developed, that it would take both quantitative and qualitative elements (Cavaye, 1996; Darke, Shanks and Broadbent, 1998; Hussey and Hussey, 1997; Leedy and Ormrod, 2001; Miles and Huberman, 1994; Myers, 1997) of the overall approach to the research to best answer the research problem, whilst following a largely deductive approach (Cavaye, 1996; Hussey and Hussey, 1997; Perry, 2001). It was recognised that the research design would entail a subjective approach (Easterby-Smith *et al.*, 1991) due to the nature of the particular research methods selected. Having evaluated a number of possible research methods it became clear that a case study approach would best fit the research problem.

Both qualitative and quantitative data was gathered, using triangulation, to assist in a comprehensive understanding of the nature of the case data (in particular, through a number of interviews, observation and the gathering of artefacts). The overall approach to the conduct of the case study conformed to the recommendations identified in the literature (Cavaye, 1996; Darke *et al.*, 1998; Gillham, 2000; Jensen

and Rodgers, 2001; Perry, 2001; Stake, 1995; Tellis, 1997; Welman and Kruger, 1999; Yin, 1994).

A detailed discussion of the research design is included in Chapter 5.

1.7 Abbreviations

ANSI: American National Standards Institute

APQC: American Productivity and Quality Centre

ASQ: American Society for Quality

AU: African Union

BP: British Petroleum

BPS: Best Practice Sharing

BSI: British Standards Institute

CBI: Confederation of British Industry

CEN: Comité Européen de Normalisation

CI: Continuous Improvement

CICOP: Continuous Improvement Community Of Practice

CKO: Chief Knowledge Officer

CMM®: Capability Maturity Model

CMM-I®: Capability Maturity Model-Integrated

COP: Community Of Practice

CSF: Critical Success Factor

DIN: German National Standards

EFQM: European Foundation for Quality Management

GKEC: Global Knowledge Economics Council

HGMC: Harmony Gold Mining Company

HIV/AIDS: Human Immune Virus/Acquired Immune Deficiency Syndrome

ICOBC: International Council of Benchmarking Co-ordinators

ICT: Information and Communication Technology

ISO: International Organization for Standardization

IT: Information Technology

KBIP: Kumba Resources Business Improvement Project

KM³®: Knowledge Management Maturity Model
KMAT: Knowledge Management Assessment Tool
KMCI: Knowledge Management Consortium International
KMMM®: Knowledge Management Maturity Model
MAKE: Most Admired Knowledge Enterprises
OHSAS: South African Occupational Health and Safety Standard
PROBE®: Promoting Business Excellence
SA: South Africa
SABS: South African Bureau of Standards
SADC: Southern Africa Development Community
SAEF: South African Excellence Foundation
SAEM: South African Excellence Model
SAI: Standards Australia International
SECAT: Systems Engineering Capability Assessment and Training
SECI: Socialisation, Externalisation, Combination, Internalisation
SEI: Software Engineering Institute
SHEQ: Safety, Health, Environment, Quality
SPICE: Software Process Improvement and Capability determination
STANSA: Standards South Africa
SW-CMM®: Software Capability Maturity Model
SWOT: Strengths, Weaknesses, Opportunities, Threats
TI-BEST: Texas Instruments Business Excellence Standard
TQM: Total Quality Management
UK: United Kingdom
USA: United States of America

1.8 Research report chapter layout

1.8.1 Chapter 2

This is the first of three chapters which form part of the non-empirical research. Chapter 2 investigates the nature of knowledge and knowledge management through a review of the literature and discusses a number of specific aspects of knowledge

management: definitions; objectives and success factors; models and frameworks; processes and sub-processes; knowledge management roles; practices and tools, and strategy.

1.8.2 Chapter 3

Here is presented a non-empirical investigation into the nature of stories and storytelling, particularly within the context of organisations. This understanding of the nature of stories and storytelling is then focused more narrowly on the application of stories and storytelling as part of a knowledge management strategy. This provides an understanding of the second aspect of the context against which the empirical research activities were conducted.

1.8.3 Chapter 4

This is where the meaning of world-class performance is explored through the use of a proposed framework. Each element of the framework is explored in turn, in terms of understanding the element of the framework and particularly as it applies to a knowledge management strategy. The results of this non-empirical investigation are used as the third and final aspect which is brought to bear on the case study empirical investigation.

1.8.4 Chapter 5

This chapter explores the possible alternatives and preferred research methodology options to be used in the conduct of the research project. This chapter has three main sections: research philosophy; research approaches, and research design or strategy. It is through the application of the choices made in terms of the overall methodology that this research project was conducted.

1.8.5 Chapter 6

This chapter has four main sections, each of which presents elements of the empirical data which was gathered during the research project. The empirical research period was initiated in October 2003 with a meeting with Kumba Resources management and concluded with feedback to the company in February 2005, with the data collection activities conducted during 2004.

The first section serves as an introduction to the case study organisation, Kumba Resources. The second section looks at the Kumba Resources knowledge management team (also known as the knowledge management department or function) and provides introduction to the Continuous Improvement Community of Practice (CICOP) that was the main focus of this research project. The next two sections in the chapter present the quantitative and qualitative data that was gathered during the empirical research activities. This data was gathered during interviews (structured, semi-structured and unstructured), through observation by the researcher and through the gathering of artefacts (including documents supplied by the Kumba Resources individuals involved in the case study as well as from a number of other sources, for example, internal Kumba Resources publications and the Kumba Resources website).

1.8.6 Chapter 7

An analysis of the data presented in Chapter 6 is to be found in this chapter. The analysis is conducted with reference to the findings of the non-empirical research (which was covered in Chapters 2, 3 and 4). The analysis is conducted at multiple levels: for Kumba Resources as a whole; the Kumba Resources knowledge management team; the CICOP, and the use of stories and storytelling as knowledge sharing practices within the Kumba Resources CICOP.

1.8.7 Chapter 8

The final chapter in this research report reviews the extent to which the research problem was answered, presents recommendations and identifies some potential areas for further research. These include topics which arose during the research but which would require more in-depth analysis or additional research.

1.9 Summary

This chapter has served as an overall introduction to the research project. The background and context to the research, combined with the motivation and research problem provide an understanding of what was to be achieved during this research project. The next chapter is the first of three chapters which present the results of the non-empirical research, starting with the nature of knowledge and knowledge management.

2 Knowledge and knowledge management

2.1 Introduction

Knowledge and knowledge management have become a significant focus of attention over the last ten to fifteen years. As has been noted: “the broad range of knowledge management-related articles, papers, books, authors, disciplines, conferences and lately, training is evidence that knowledge management is a discipline which needs to be considered in any modern business strategy and planning,” (Binney, 2001:33). Examples of Binney’s observation can be found in the influential books written by Davenport and Prusak (1998), Drucker (1993), Leonard (1995), Nonaka and Takeuchi (1995); Quinn (1992), Senge (1990), Stewart (1997), etc. As Davenport and Glaser (2002) have pointed out, knowledge management seemed to be riding the crest of a wave in the mid-to-late 1990s. Despite this wide coverage, however, there is no final agreement as to what the terms ‘knowledge’ and ‘knowledge management’ really mean¹.

Since an understanding of the nature of knowledge and knowledge management is important for this project, as it (along with two other dimensions, ‘stories and story telling’ and ‘world-class performance’) will provide the context for the research, this chapter will explore that nature.

2.2 What is knowledge?

2.2.1 Knowledge definition

Many different definitions of knowledge exist. In the broadest sense ‘knowledge’, as defined by Merriam-Webster’s Collegiate Dictionary (2002), is

¹ “There is no single agreed definition of knowledge. Any definition is controversial,” (BSI, 2003b:16). This is also true of knowledge management, as will be seen in section 2.3.

- The fact or condition of knowing something with familiarity gained through experience or association
- Acquaintance with or understanding of a science, art, or technique
- The fact or condition of being aware of something
- The range of one's information or understanding
- The circumstance or condition of apprehending truth or fact through reasoning
- The sum of what is known
- Facts or ideas acquired by study, investigation, observation, or experience.

More narrowly, it is also worth considering a number of definitions of knowledge that can be found in the management literature (shown in table 2.1).

“Knowledge is the capacity to act” (Sveiby, 1997:37)
“Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organisations, it often becomes embedded not only in documents and repositories but also in organisational routines, processes, practices and norms” (Davenport and Prusak, 1998:5)
“Knowledge is information in action” (Elliott and O’Dell, 1999:34)
“Knowledge is the capacity for effective action” (Senge, 1999:7)
“Knowledge is commonly distinguished from data and information...knowledge is that which we come to believe and value on the basis of the meaningfully organised accumulation of information through experience, communication or inference” (Zack, 1999b:46)
“Knowledge is information transformed in understanding and into capability for effective action; the ability to act; a set of models that describe various properties and behaviours within a domain; the insights, understanding and practical know-how that we all possess” (European KM Forum, 2002:online)
“Knowledge is information in context to produce an actionable understanding” (Rumizen, 2002:288)
“Knowledge is a set of data and information and a combination of, for example,

know-how, experience, emotion, beliefs, values, ideas, intuition, curiosity, motivation, learning styles, attitude, ability to trust, ability to deal with complexity, ability to synthesise, openness, networking skills, communication skills, attitude to risk and entrepreneurial spirit to result in a valuable asset which can be used to improve the capacity to act and support decision-making” (CEN, 2004:online)

Table 2.1 Knowledge definitions

These examples are representative of the views to be found in knowledge management literature as to the definition of knowledge. One of the common themes appearing in the literature, through several of the definitions given in Table 2.1, is the extent to which knowledge is related to action, that it provides ‘the capacity to act’ (CEN, 2004; Elliott and O’Dell, 1999; Rumizen, 2002; Senge, 1999; Sveiby, 1997). This theme provides the definition of knowledge for the purposes of this research project.

These definitions also provide a starting point for the discussion of three particular aspects of knowledge. In the first place, there is the distinction between data, information and knowledge. This distinction suggests that knowledge is somehow more than data or information and that knowledge relies upon the existence of data and information (Davis and Botkin, 1994; Drucker, 1988; Grover and Davenport, 2001; Zack, 1999b). Data (raw facts and figures), information (data that has been subjected to some treatment or interpretation) and knowledge (data and information combined with the personal contribution of the knower), form what is sometimes described as a data/information/knowledge hierarchy (drawn as a pyramid, with data the base of the pyramid, knowledge at the peak and information in between). If the pyramid is considered as a continuum, then there is a sense of transformation that takes place in the movement between each of the three elements. Data and information can be separated from the individual, but knowledge (in the strictest sense) cannot. The focus in this research project is on knowledge as opposed to data or information.

The second particular aspect of the definition of knowledge is the extent to which knowledge can be separated from the individual (made explicit, such as in definition

from Davenport and Prusak (1998), where such explicit knowledge may be represented in the number of ways), as opposed to resting in the individual (remaining tacit or implicit, not made external to the individual). Grover and Davenport (2001:7) discussed tacit versus explicit knowledge and stated that the idea of two types of knowledge can be traced back to Polanyi: “tacit knowledge, which is embedded in the human brain and cannot be expressed easily, and explicit knowledge, which can be easily codified. Both types of knowledge are important.” Other authors also trace the definition of the tacit/explicit dimensions to Polanyi (Rumizen, 2002; Zack, 1999b). Zack stated that, “tacit knowledge is subconsciously understood and applied, and usually shared through highly interactive conversation, storytelling and shared experience.” In contrast, “explicit knowledge is more precisely and formally articulated, although removed from the original context of creation or use,” (Zack, 1999b:46). Explicit knowledge represents, “the things we know that we can write down, share with others, and put into a database,” (Rumizen, 2002:287) whereas tacit knowledge is, “what we do not know that we know. It includes know-how, rules of thumb, experience, insights, and intuition,” (Rumizen, 2002:291). Further support for the distinction between explicit and tacit knowledge is found in the statement that explicit knowledge is, “knowledge that has been communicated or documented and is therefore available for use independently of the original knowledge creator,” (BSI, 2003b:11) whereas tacit knowledge is, “personal knowledge resident within the mind, understanding, perception and know-how of individuals...[and is] typically shared through discussion, stories, and allegories, and person-to-person interaction,” (BSI, 2003b:29). This distinction between tacit and explicit knowledge provides an important element of the analytical framework to be used in this research project.

The third aspect of knowledge which needs to be understood in the context of this research is the extent to which knowledge is individual (held by one person) or collective (held by one or more groups of people, or by an organisation as a whole). This distinction between individual and collective knowledge has been recognised (CEN, 2004; European KM Forum, 2002) as a potential contributor to the extent to which knowledge can be shared. Individual knowledge is much more difficult to share as it must be in some way made external to the individual, even in circumstances where the individual may be unaware that such knowledge exists. Collective knowledge, which is explicit, can be much more easily captured: “typically in objects,

words and numbers, in the form of graphics, drawings, specifications, manuals, procedures etc and can therefore be easily shared and understood,” (European KM Forum, 2002:online). This explicit knowledge may be represented in a number of different ways (Davenport and Prusak, 1998; Demarest, 1997) such as in products and services, business practices and processes and the environment and culture of an organisation.

2.2.2 Knowledge as a resource

The last fifty years has seen the arrival of a new societal era which has been given a number of names, such as the ‘post-industrial era’, ‘information age’ and ‘knowledge society’ (Bell, 1973; Drucker, 1988; Gold, Malhotra and Segars, 2001; Senge, 1998; Toffler, 1990). One of the landmarks of this new era has been the emergence of the recognition of a new management resource: knowledge. Knowledge has a significant role to play alongside the other traditional resources for organisations: men, money, machinery, and materials. Despite this growth in interest in knowledge as a resource, the need to focus on traditional resources at management disposal has not changed, although the emphasis has. Where once labour or human capital was seen from the view that people were required for their physical capacity, the approach now must include the intellectual capacity of those individuals as well. As the nature of work reflects the move away from the agrarian and extractive activities of the agricultural age and the manufacturing and industrial activities of the industrial age, to the innovative and service activities of the new knowledge or information age, so the need to better understand knowledge as a resource will continue to increase.

Davis and Botkin (1994) were among the first to identify that knowledge can be used as a key resource, also where the effective use of knowledge has the capability to take the organisation to new, higher levels of performance. They reinforced the case for knowledge as a key management resource when they asserted: “the next wave of economic growth is going to come from knowledge-based businesses,” (1994:165). Another example of this focus on knowledge as a resource in organisations came from Prusak (cited in Cohen, 1998:23) who also stated that, “there is an emerging new theory of the firm, one that recognises the growing complexities of work, products

and organisations,” concluding that, “the only sustainable competitive advantage comes from what you know and how fast you can put it to use.” Clearly, this is a reference to the way in which knowledge can be used as a resource. Drucker (cited in Ruggles, 1998:80) also stated that, “knowledge has become the key economic resource and the dominant – and perhaps even the only – source of comparative [sic] advantage.” Similar recognition of the importance of knowledge as a resource came from Zack (1999a) who looked at the importance of the role of knowledge and the resource-based theory of the firm, where knowledge provides a powerful capability for the organisation and one that is difficult for others to replicate: “knowledge can be considered the most important strategic resource,” (Zack, 1999a:128). Earl (2001:231) agreed when he said that “to those who believe in resource-based theories of the firm...knowledge tends to be firm-specific and can be difficult to imitate.” There is a marked similarity in the views expressed by these authors: knowledge should be seen as a resource, and potentially the key resource, in determining the success of organisations in the future. The implication of this is that knowledge needs to be managed. This idea will be explored in the next section.

2.3 What is knowledge management?

2.3.1 Knowledge management definition

At much the same time (from the mid-1990s onwards) as the focus on knowledge as a resource in organisations received growing attention so did the issue of how to manage that knowledge, giving rise to the knowledge management movement, as highlighted by Binney (2001) and Prusak (2001).

As was the case with the definition of knowledge, there is no single, commonly agreed, definition for knowledge management (Haggie and Kingston, 2003; Paulzen and Perc, 2002). Just as knowledge is multi-faceted, complex and ever changing, so is knowledge management. Despite this lack of agreement, or perhaps rather because of it, it is important in the context of this research project to explore the meaning of

knowledge management. Table 2.2 offers just some of the possible definitions of knowledge management drawn from the literature between 1998 and 2004.

“[Knowledge management] is an approach to adding or creating value by more actively leveraging the know-how, experience, and judgment resident within and, in many cases, outside of an organisation” (Ruggles, 1998:80)
“Knowledge management is the strategies and methods of identifying, capturing and leveraging knowledge to help a firm compete” (O’Dell, Wiig and Odem, 1999:203)
“Knowledge management is a multi-disciplined approach to achieving organisational objectives by making the best use of knowledge” (SAI, 2001:7)
“[Knowledge management is] an approach to improving an organisation's capabilities through better use of the organisation's individual and collective knowledge resources. Knowledge management is a discipline that uses technology to share and leverage information for innovation” (European KM Forum, 2002:online)
“[Knowledge management is] the broad process of locating, organising, transferring and using the information and expertise within an organisation” (European KM Forum, 2002:online)
“[Knowledge management is] managerial activities that focus on the development and control of knowledge in an organisation to fulfil organisational objectives” (European KM Forum, 2002:online)
“[Knowledge management is] the strategies and processes of identifying, capturing and leveraging knowledge to enhance competitiveness” (European KM Forum, 2002:online)
“[Knowledge management is] how an organisation identifies, creates, captures, acquires, shares, and leverages knowledge” (Rumizen, 2002:288)
“Knowledge management is the creation and subsequent management of an environment which encourages knowledge to be created, shared, learnt, enhanced, organised and utilised for the benefit of the organisation and its customers” (BSI, 2003b:19)
“Knowledge management: planned and ongoing management of activities and processes for leveraging knowledge to enhance competitiveness through better use and creation of individual and collective knowledge resources” (CEN, 2004:online)

Table 2.2 Knowledge management definitions²

It is interesting to note that in the case of the European KM Forum, not one but several definitions are offered, indicating something of the complexity and difficulty of settling on a single definition. Some of the definitions of knowledge management are more focused on the objectives (goals) of using knowledge (such as ‘creating value’ (Ruggles, 1998) and ‘to achieve organisational objectives’ (SAI (2001)), as opposed to a process approach (BSI, 2003b; Rumizen, 2002).

² This table is presented in chronological sequence.

Although Ruggles (1998) sees knowledge management as ‘an approach’, there are in fact many different possible approaches, as highlighted by Earl (2001) when he classified seven different schools of knowledge management, each of which represents a valid alternative way of seeing and undertaking a knowledge management initiative. This issue will be further explored in section 2.3.4.

The concept of leveraging or making best use of knowledge is common to the definition offered by CEN (2004), European KM Forum (2002), Rumizen (2002) and SAI (2001). This suggests that there must be planned, deliberate action taken on the part of the organisation to achieve the potential that exists in the use of knowledge through knowledge management.

Looking in more detail at the table of definitions, and in particular those put forward by the European KM Forum (2002), the first draws the distinction between individual and collective knowledge, specifically mentioning knowledge as a resource. It is also the only definition that makes any mention of the role of technology. The second takes a much more process-oriented approach, and so is similar to the emphasis from Rumizen (2002). The third European KM Forum (2002) definition includes the use of the word ‘control’ which is not found in any of the other definitions offered and therefore is somewhat of an anomaly, whereas the last of the European KM Forum (2002) definitions is almost identical to that from O’Dell *et al.* (1999), merely substituting the word ‘processes’ for ‘methods’.

The Rumizen (2002) definition is highly process-oriented, which whilst being similar to the definition from BSI (2003b) and the first of the European KM Forum (2002) definitions (having many of the same elements) does not specifically address the issue of ‘creating an environment’ in which knowledge can be created and shared. The final definition listed in Table 2.2 (CEN, 2004) again highlights the importance of including individual and collective knowledge when considering the true meaning of knowledge management.

Having considered the definitions contained in Table 2.2, for the purposes of this research project, none of the definitions was found to be worthy of disregarding nor does any single definition suggest precedence over any other. Therefore, the following

definition will be used: ‘knowledge management is a deliberate attempt on the part of an organisation to share what it knows and to create new knowledge’.

As the management of knowledge is a significant element in the process of achieving the objectives of the organisation, there should, in turn, be objectives for knowledge management. This aspect is addressed in the next section.

2.3.2 Knowledge management objectives

Organisations do not all have the same objectives. One can expect to find significant differences, for example, in the objectives of governments, non-governmental organisations, and commercial entities (for-profit organisations) based on the nature of their activities and the interests of their stakeholders. In addition, depending upon the position of the organisation in its life cycle, the objectives may be geared more towards survival (for a start-up), growth (either in terms of market share, profitability or some other measure), or return to stakeholders (including but not limited to the profit motive). If knowledge and knowledge management are to contribute towards the achievement of the organisation’s objectives, then it becomes important to understand what those objectives for knowledge management might be. Table 2.3 presents the results of research into approximately 600 knowledge management projects that have been reported in the literature³.

³ The columns in this table are presented for general comparison. There is no intention to indicate that each row in the table is directly comparable.

Davenport, De Long and Beers (1998) surveyed 31 knowledge projects	Ruggles (1998) surveyed 430 knowledge projects	Prusak (in Cohen, 1998) surveyed 100 knowledge projects	McKeen and Staples (2001) surveyed 41 knowledge projects⁴
Create knowledge repositories	Create knowledge repositories	To build a knowledge infrastructure...a web of connections among people	Create knowledge repositories
Improve knowledge access (including the use of yellow pages)	Creating intranets	To make knowledge visible and show the role of knowledge in organisations, mainly through maps, yellow pages, hypertext tools	Creating intranets
Enhance knowledge environment ⁵	Implementing decision support tools	To develop a knowledge-intensive culture	Implementing decision support tools
Manage knowledge as an asset	Implementing groupware to support collaboration		Implementing groupware to support collaboration

Table 2.3 Objectives for knowledge management initiatives

What becomes apparent when evaluating the results of the research reported in Table 2.3 is that there are distinct similarities in terms of the objectives of the knowledge projects surveyed. The biggest similarity is the common interest in many of these projects in creating knowledge repositories (capturing and making available explicit knowledge either to groups within the organisation or to the organisation as a whole). The second common objective across the projects surveyed is increasing access to those individuals with knowledge (through such means as yellow pages/directories and intranets), emphasising the role that technology has to play in knowledge management implementations. The third factor mentioned by more than one author is

⁴ The similarity in the findings from McKeen and Staples (2001) and Ruggles (1998) is that the latter study was designed as an update to the former study.

⁵ To create and support an environment in which knowledge is created and shared.

the extent to which knowledge management is a cultural issue, where the creating and nurturing of an environment that encourages knowledge to flow and be created is recognised as being a specific objective. A fourth common factor is the relatively small number of objectives highlighted by the authors for the knowledge projects undertaken.

Having identified some of the common objectives for knowledge management initiatives it becomes relevant to investigate the possible success factors associated with knowledge management.

2.3.3 Knowledge management success factors

A number of authors have reported on the success factors⁶ associated with knowledge management initiatives (Cohen, 1998; Davenport and Prusak, 1999; Davenport *et al.*, 1998; Demarest, 1997; Denning, 2004c; Earl, 2001; Elliott and O'Dell, 1999; Gartner cited in Snyman and Kruger, 2004; Hiebeler, 1996; Nonaka, 1994; Pommier, undated; Skyrme, 2000; Von Krogh, Ichijo, Nonaka, 2000).

Table 2.4 presents five of those sources where specific use of the term 'success factor' is made in describing the elements that contribute to a knowledge management strategy⁷.

⁶ These authors used a number of terms such as 'key elements' or 'pre-requisites' or 'building blocks' as well as 'success factors'.

⁷ The columns in this table are presented for general comparison. There is no intention to indicate that each row in the table is directly comparable.

Hiebeler (1996)	Davenport <i>et al.</i>, (1998)	Skyrme (2000)	Pommier (undated) and Denning (2004c)	Gartner (Snyman and Kruger, 2004)
Taking a long-term view of the benefits of a knowledge management strategy	Link to economic performance or industry value	Strong link to a business imperative	Defining a knowledge strategy	Linked to the strategic direction of the organisation
Integrating knowledge management into the culture	Technical and organisational infrastructure	A knowledge creating and sharing culture	Nurturing communities of practice	Requires an organisational culture and discipline that promotes and supports knowledge sharing, collaboration, innovation.
Making and communicating a commitment to knowledge sharing	Standard, flexible knowledge structures	Knowledge leadership	Choosing technologies that help sharing knowledge	Must be enabled by robust business and human processes
Developing a framework for capturing knowledge	Clear purpose and language	Continuous learning	Organising knowledge management	Depends on a compelling technology environment to automate the processes
Making information systems accessible and easy to use	Change in motivational practices	Well-developed information and communications infrastructure	Introducing new personnel incentives	Requires an extended-enterprise scale and scope of processes, people and content
Creating, capturing, and transferring knowledge internally	Multiple channels for knowledge transfer	Systematic knowledge processes	Providing a budget for knowledge sharing	
Allocating	Senior	A compelling	Communicating	

time and resources for knowledge sharing	management support	vision and architecture	the values of knowledge sharing	
Finding financial and non-financial ways to measure the benefits of knowledge management	Knowledge-friendly culture		Measuring performance	

Table 2.4 Knowledge management success factors

The number of success factors varies from five (the least) to eight (the most), indicating that a relatively small number of success factors should be the focus of attention for an organisation seeking to be successful in its knowledge management activities.

In analysing the entries in Table 2.4 it can be seen at once that there is a remarkable degree of similarity between the various success factors identified: the focus on the role of knowledge management strategy, leadership, culture, infrastructure, processes and measurement (although this last factor is only mentioned by two of the authors). These six factors can be used in the context of this research project as a further element of the analytical framework for the review of the case study organisation.

Which of the six factors are the most relevant in an organisation undertaking a knowledge management strategy will depend in part not only on the objectives which have been set (for the organisation as a whole and for knowledge management specifically), but also the overall approach (philosophy, model, framework or school of thought) for knowledge management within the organisation.

2.3.4 Knowledge management models and frameworks

It has been identified that there are no unique, generally agreed definitions for knowledge or knowledge management. Perhaps given the relative immaturity of the knowledge management field it should not be surprising then that there is also no single, generally recognised and accepted model or framework for the implementation of knowledge management. However, several attempts have been made to categorise the models, frameworks and approaches to knowledge management that exist (Binney, 2001; Earl, 2001; McAdam and McCreedy, 1999).

McAdam and McCreedy (1999) identified a number of knowledge management models that they classified into three categories:

- Knowledge category models. These types of models categorise knowledge into discrete elements, such as tacit and explicit knowledge elements. An example of this model type according to McAdam and McCreedy (1999) would be the ‘Socialisation, Externalisation, Combination, Internalisation’ (SECI) model from Nonaka and Takeuchi (1995).
- Intellectual capital models. These models assume intellectual capital can be segregated into human, customer, process and growth elements. An example given by McAdam and McCreedy (1999) would be the Skandia model (Chase, 1997).
- Socially constructed models. These models assume a wide definition of knowledge and views knowledge as being intrinsically linked with the social and learning processes within the organisation. An example would be the ‘learn before/during/after’ model as used at British Petroleum (McAdam and McCreedy, 1999).

Binney (2001) took a somewhat different approach in his analysis of knowledge management models and proposed his ‘Knowledge Management Spectrum’ as a framework that covers a wide range of knowledge management applications (he identified thirty nine applications in total). He grouped these into a framework that consisted of six elements:

- Transactional knowledge management: knowledge is provided to the user through interaction with the system
- Analytical knowledge management: large amounts of data or information are used to derive trends and patterns which if acted upon can become knowledge
- Knowledge asset management: includes explicit knowledge assets and intellectual property
- Process based knowledge management: focuses on the improvement of processes, work practices, procedures or methodology
- Developmental knowledge management: focuses on increasing the competencies or capabilities of the knowledge workers
- Innovation/creation knowledge management: focuses on providing an environment in which knowledge workers can collaborate to create new knowledge (Binney, 2001).

Binney's (2001) analysis is much more of a conceptual framework for understanding the various elements of knowledge management than a specific model of how knowledge management works in an organisation. In that sense, his analysis is similar to that of Earl (2001) who organised a number of models of knowledge management into 'schools'. Earl (2001) looked at several attributes of each school identified in his framework (focus; aim; unit; example; critical success factors; principle information technology contribution; philosophy), and defined a total of seven schools of knowledge management which he organised into three groups.

The first group consisted of three schools and was classified as being *technocratic*: systems (largely based on the use of technology), cartographic (based on the concept of mapping knowledge), and engineering (based on the principles of engineering business and management processes). The fourth school, economic, was identified as *commercial* (based on the firm's knowledge asset management). The remaining three schools were identified as *behavioural*. These schools were organisational (based on the use of networks or structures), spatial (based on the use of space to facilitate knowledge exchange), and strategic (where knowledge is an element of competitive strategy). Earl proposed that the seven schools suggest that knowledge management

can not only be defined in different ways, but that, “there is considerable choice in both what to do and how to do it,” (Earl, 2001:232).

Each of these three attempts to categorise the overall framework or approach to knowledge management (Binney, 2001; Earl, 2001; McAdam and McCreedy, 1999) is relatively comprehensive, but leaves it up to the practitioner to choose between the various alternatives presented, rather than being prescriptive as to which specific approach or model should be applied in a particular situation. This is useful for an organisation embarking on the ‘knowledge management journey’ but is not specific enough to be of great value in the case of this research project.

Apart from the overall frameworks as discussed already in this section, a number of other individual models or frameworks have been identified in the literature: the codification/personalisation model (Hansen, Nohria, and Tierney, 1999); the American Productivity and Quality Centre (APQC) model (O’Dell *et al.*, 1999); the key infrastructure model (Gold *et al.*, 2001); the learn before/during/after model⁸ (Collison and Parcell, 2001); the intangible asset model (Sveiby, 2001); the European KM Forum Knowledge Management framework (European KM Forum, 2002). These six models/frameworks are discussed here.

Hansen *et al.* (1999), in their model, highlight the difference between knowledge codification and personalisation. In this model, codification was focused on the creation of knowledge repositories, whereas personalisation related to direct interaction of people and through networks in achieving their knowledge management objectives. They specifically looked at how consulting firms manage their knowledge and used comparisons based on the firms’ competitive strategies, economic models, knowledge management strategies, information technologies and human resources. The authors observed that firms tended to use one of the two approaches (codification or personalisation) as their dominant approach, whilst using the alternative as a supporting approach (typically on a Pareto-like 80:20 basis)⁹.

⁸ Already mentioned as an example, it will be more fully discussed here.

⁹ Examples included Ernst and Young for codification and Bain and Company for personalisation (Hansen *et al.*, 1999).

The APQC and Arthur Andersen developed a knowledge management framework in the mid-1990s (O'Dell *et al.*, 1999). The model had four 'knowledge management enabler' elements (strategy and leadership; culture; technology; measurement) and seven knowledge management processes (these are listed in Table 2.5). This framework was intended to be used by those taking part in a benchmarking study into knowledge management best practice as a context for thinking about knowledge management, and has since been used as the basis for the implementation approach recommended by the APQC (APQC, 2000).

Gold *et al.*, (2001) presented a knowledge management model with three key elements: technical (technology-enabled ties within the firm), structural (norms and trust mechanisms), and cultural (shared contexts) which would enable the maximisation of social capital through the ability to store, transform and transport (share or transfer) knowledge. This model combined knowledge infrastructure capability with knowledge process capability to give organisational effectiveness, and included a series of measures for each element of the model.

Collison and Parcell (2001) reported British Petroleum's (BP) own model of knowledge management, emphasising learning before, learning during and learning after specific engagements (often structured as projects) where knowledge could be brought to bear to improve organisational performance. Collison and Parcell (2001) also referenced the building blocks of people, process and technology as part of a commonly used model of knowledge management (without quoting a specific reference as a source), and explained what they saw as their unique developments at BP (such as knowledge sharing methods which they developed).

Sveiby (2001) presented a knowledge management model that emphasised a *knowledge-based theory of the firm* and was presented as an alternative to a traditional product/market-based view (Sveiby used Porter (1980) as an example of this traditional view). In Sveiby's model there were three families of intangible assets: the external structure; the internal structure and individual competence. Sveiby's focus was on the transfers that take place between the elements of his model.

The European KM Forum (2002) knowledge management framework was developed as a joint effort between a group of European-based stakeholders and consisted of the following elements:

- Knowledge management strategies
- Human and social knowledge management issues
- Knowledge management organisation
- Knowledge management processes
- Knowledge management technologies
- Leadership
- Knowledge management performance measurement
- Knowledge management business cases and implementation (European KM Forum, 2002).

This framework presented an opportunity to implement knowledge management successfully but without exploring the underlying theoretical principles on which knowledge management is based.

Each of the six models or frameworks just presented has its own attractions and yet none really offers a fundamental understanding of the nature of how knowledge is shared and created in an organisation at the level of the individual, teams and the organisation as a whole. To gain this understanding, it is necessary to explore one of the most widely quoted and recognised models of knowledge management: the SECI model¹⁰ (Nonaka, 1991; Nonaka and Takeuchi, 1995). This model goes a long way to providing an understanding of how knowledge sharing and creation works in practice, taking into account the differences between tacit/explicit and individual/collective knowledge identified in section 2.2.1. Nonaka and Takeuchi (1995) pointed out that in the SECI model (a simplified version of which appears in Figure 2.1) the spiral of knowledge creation carries from individual to group to organisation/inter-organisation.

¹⁰ Already mentioned in this section as an example given by McAdam and McCreedy (1999) within their overall model framework.

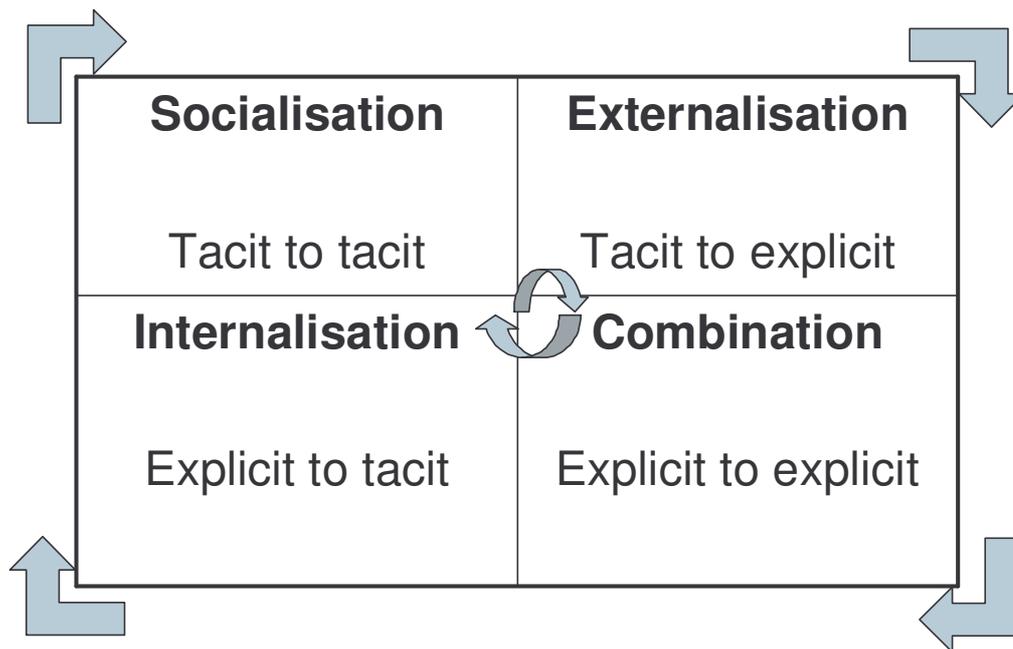


Figure 2.1 SECI Model
(Source: Nonaka and Takeuchi, 1995)

Later Nonaka and Konno (1998) took the model somewhat further. They identified two dimensions of tacit knowledge: the technical dimension, comprising informal personal skills or crafts or know-how; and the cognitive dimension: beliefs, ideals, values, mental models. They drew attention to the fact that the cognitive element is very difficult to articulate but shapes the way we see the world. Nonaka and Konno (1998) then drew a parallel between the SECI model and four types of Ba¹¹ (originating, interacting, cyber, exercising). They quoted examples of the use of Ba, emphasising the living nature of knowledge, where knowledge is seen more as a flow than a stock.

Each element of the SECI model will be explored in more detail following the approach of Nonaka and Konno (1998).

¹¹ “Ba can be thought of as a shared space for emerging relationships space can be physical, virtual or mental or combination of all three. Ba is considered a shared space that serves for knowledge creation,” Nonaka and Konno (1998:41).

Firstly, socialisation involves the sharing of tacit knowledge between individuals (more so than at the group or organisation level). This might happen through such activities as spending time and working together or living in the same environment, all of which revolve around physical proximity. Two other elements included in socialisation are the direct interaction with suppliers and customers, as well as the physical activity of walking around inside the business. In essence, this is a 1-on-1 form of knowledge sharing.

Secondly, externalisation is supported by two key factors. The first of these factors, the articulation of tacit knowledge (or the conversion of tacit into explicit knowledge), could involve techniques that help to express one's ideas (including metaphors, analogies, or narratives, and visuals). This can be achieved by individuals or teams (such as in a community of practice¹²) or at the level of the whole organisation. The second factor involves translating the tacit knowledge of various role players (internal and external) into readily understandable forms.

Combination involves the conversion of explicit knowledge into more complex sets of explicit knowledge. Here the key issues are communication and diffusion processes and the systemisation of knowledge. Combination relies upon three processes:

- Capturing and integrating new explicit knowledge. For example, collecting externalised knowledge (e.g. public data) from inside or outside the company and then combining such data.
- The dissemination of explicit knowledge. This is based on the process of transferring this form of knowledge directly by using presentations or meetings.
- The editing or processing of explicit knowledge to make it more usable.

The fourth element from the SECI model, internalisation, relies upon two dimensions. In the first of these, the process of internalising the explicit knowledge actualises concepts or methods about strategy, tactics, innovation, or improvement. In the

¹² This concept will be discussed further in section 2.3.7.

second, there is a process of embodying the explicit knowledge by using simulations or experiments to trigger learning by doing processes.

The SECI model was selected as the model of knowledge management that best fitted the nature of the research problem, as it would allow an analysis based on the elements of tacit and explicit knowledge as well as individual and collective knowledge. The analysis could, therefore, be achieved without the pre-requisite of finding an organisation that had already decided to follow one of the other, more specific models or frameworks outlined earlier in this section. In other words, the generic nature of the SECI model (its ability to be applied in a wide range of organisational settings, at the level of individuals, teams and the whole organisation) made it an appropriate choice in the situation where the environment at the case study organisation could not be predicted in advance of the research project being undertaken.

Having selected a specific reference model (in this case the SECI model) it is important to gain a clearer understanding of the broad range of possible processes that can be applied where knowledge management activities are undertaken.

2.3.5 Knowledge management processes and sub-processes

Given the lack of conclusive agreement about a single definition of knowledge and knowledge management, and the many different models of knowledge management, it should be expected that there should be a range of opinions as to the processes that constitute knowledge management. Table 2.5 represents (in alphabetical sequence by source) some of the contributions to the debate about which processes and sub-processes comprise knowledge management:

Source	Process or sub-process elements identified
Birkinshaw and Sheehan (2002)	<ul style="list-style-type: none"> • Creation; mobilisation; diffusion; commoditisation
Cohen (1998)	<ul style="list-style-type: none"> • Collecting; distributing; re-using; measuring
Collison and Parcell (2001)	<ul style="list-style-type: none"> • Learn before; learn during; learn after
Cross and Baird (2000)	<ul style="list-style-type: none"> • Target where learning needs to take place • Provide a structure that encourages individuals and groups to share what they have learned from their experiences • Build organisational memory
Davenport, Thomas and Cantrell (2002)	<ul style="list-style-type: none"> • Analytic process and the decision-making process
Davenport, Jarvenpaa and Beers (1996)	<ul style="list-style-type: none"> • Acquisition; creation; packaging; application; reuse
Demarest (1997)	<ul style="list-style-type: none"> • Construction; embodiment; dissemination; use
Despres and Chauvel (1999)	<ul style="list-style-type: none"> • Map; acquire/capture/create; package; store; apply/share/transfer; innovate/evolve/transform
European KM Forum (2002)	<ul style="list-style-type: none"> • Identifying, locating, capturing, sharing, leveraging, organising, storing, transferring, retrieving
Gold <i>et al.</i> (2001)	<ul style="list-style-type: none"> • Acquiring, convert, apply, protect
Grant (1996)	<ul style="list-style-type: none"> • Efficiency of integration; scope of integration; flexibility of integration
Grover and Davenport (2001)	<ul style="list-style-type: none"> • Generation; codification; transfer/realisation
Leonard (1995)	<ul style="list-style-type: none"> • Acquire; collaborate; integrate; experiment
Nonaka and Takeuchi (1995)	<ul style="list-style-type: none"> • Socialisation; externalisation; internalisation; combination
O'Dell and Grayson (1998)	<ul style="list-style-type: none"> • Create; identify; collect; organise; share; adapt; use
Paulzen and Perc (2002)	<ul style="list-style-type: none"> • Identify; generate; use; store; distribute; evaluate
Ruggles (1998)	<ul style="list-style-type: none"> • Generating; accessing; using; embedding; representing; facilitating; transferring; measuring
Skyrme and Amidon (1998)	<ul style="list-style-type: none"> • Create; transfer; use
SAI (Standards Australia International) (2001)	<ul style="list-style-type: none"> • Sharing; acquisition; creation
Sveiby (2001)	<ul style="list-style-type: none"> • Knowledge transfer (between individuals and internal and external structures)
Teece (1998)	<ul style="list-style-type: none"> • Create; transfer; assemble; integrate; exploit
Von Krogh, Nonaka and Aben	<ul style="list-style-type: none"> • Creation; transfer

(2001)	
Zack (1999b)	<ul style="list-style-type: none"> Acquisition; refinement; storage and retrieval; distribution; presentation

Table 2.5 Knowledge management processes and sub-processes listing

As the contents of Table 2.5 clearly demonstrate, there is no single set of agreed knowledge management processes. There are, however, some key themes that emerge. Taking the list of sources in Table 2.5 and reducing the terms to those with common and unique characteristics yields the following table¹³:

Acquire / gather / assemble / collect
Capture / store
Codify / map / identify
Collaborate
Combine / integrate / convert / transform / create / generate / construct / adapt / refine
Disseminate / diffuse / distribute / present / represent / facilitate
Experiment
Externalise
Innovate / evolve
Internalise / embed / learn
Measure / evaluate
Package / commoditise / organise
Protect
Reward
Share / transfer / socialise / mobilise
Use / apply / exploit / realise / reuse / access / retrieve

Table 2.6 Integrated list of processes/sub-processes

¹³ Even this attempt at de-duplication is subject to discussion, as this shorter list of sixteen processes (or process/sub-process groups) is merely yet another interpretation, this time by the author of this research project, of what processes constitute knowledge management.

Of all the processes listed in Table 2.6, the one of most interest in the context of the main problem in this research project is the knowledge sharing process¹⁴. “Knowledge sharing is a process by which knowledge is transferred within and between organisations,” (BSI, 2003b:22) and knowledge sharing occurs “when people are genuinely interested in helping one another develop new capacities for action,” (Senge, 1999:6).

It would be useful for the analysis to be conducted in this research to have a clearer definition of the types of sharing that can take place and Dixon’s (2000) four types of knowledge sharing (transfer) sub-process definitions have been adopted for this research:

- Serial sharing: where the same team in a new context repeats a task.
- Near sharing: where knowledge moves from a source team to a receiving team on a similar task in a similar context in a different location.
- Far sharing: where knowledge moves from a source team to a receiving team about a non-routine task.
- Strategic sharing: where very complex knowledge is shared and the teams are separated by time and space.

Sharing knowledge can take place through the use of a number of different practices and tools (Allee, 1997; Bouthillier and Shearer, 2002; Davel and Snyman, 2005). The choice of which practices and tools to use as enablers to knowledge management will be further explored in section 2.3.7.

Sharing knowledge is not necessarily easy and a number of barriers to sharing have been identified: cultural factors; the reward system; management leadership; ignorance; absorptive capacity; lack of a sharing relationship; lack of an effective, co-ordinated and coherent strategy to share (O’Dell and Grayson, 1998, 2004; Sveiby, 2001; Szulanski, 1996).

¹⁴ For the purposes of this research the term ‘share’ is taken to include the related term ‘transfer’.

In summary, there are many different and overlapping definitions of the processes involved in knowledge management. Of all these processes, the one of most interest for this research is knowledge sharing. Sharing can be achieved at the level of the individual, group, or organisation. There are many different possible practices and tools to assist in knowledge sharing. Sharing is not necessarily easy and requires a number of barriers to be overcome.

The next section will look at the roles required to implement knowledge management effectively.

2.3.6 Knowledge management roles

The roles within knowledge management, including those of the knowledge workers themselves as well as the specialist roles involved in making knowledge management happen, have received significant attention in the literature (Davenport *et al.*, 1996; Drucker, 1988, 2000; Earl and Scott, 1999; Leonard, 1995; Malhotra, 2002; O'Dell, 2002; TFPL¹⁵, 1999, 2003; Zack, 1999b) and are the focus of this section.

The importance of the knowledge worker has been recognised for some time (Drucker, 1988). He also highlighted the productivity of knowledge workers as the great management task of the 20th century, just as making manual work productive had been the great management task of the previous century. Drucker referred to this theme of the management of knowledge workers (without specifically offering a definition of a knowledge worker) when he stated that the most valuable asset of a 21st century institution “will be its knowledge workers and their productivity,” (Drucker, 2000:79). Leonard (1995) used the example of Chaparral Steel, to define a knowledge worker. In the definition, she included manual workers as well as non-manual workers in the organisation. This is in contrast to Davenport *et al.* (1996:57) who saw knowledge work as being, “performed by professional or technical workers

¹⁵ The company only uses initials for its name on its web site and in all publications.

with a high level of skill or expertise”¹⁶. For the purposes of this research, the broader definition of all employees as knowledge workers is used.

If it is accepted that knowledge workers may be found widely distributed across the organisation, there may still be a requirement for specialist knowledge roles to be defined in order to complete the successful implementation of a knowledge management initiative. O’Dell (2002), for example, identified three critical roles in knowledge management implementation: knowledge stewards (who collect, analyse, and organise knowledge); knowledge facilitators (who establish connections between individuals in order to share knowledge); and community of practice¹⁷ leaders (who set the direction and climate for knowledge sharing in their communities). In addition, organisations need a strategic support/steering group as well as a central knowledge management support team: “there need to be some common processes and principles and tools, and the central group can help make that happen,” (O’Dell, 2002: online).

Some of the most comprehensive work on roles for knowledge management has been published by TFPL (1999, 2003). In their briefing paper, TFPL (1999) identified a number of key attributes for knowledge management roles:

- Knowledge management roles may be undertaken on a full-time, part-time or additional-duty basis
- Knowledge management roles may be filled by people recruited either from inside or outside the organisation
- Knowledge management roles may be described at a high level with commonality across most organisations even if there are differences in the details.

What is revealing about their research is that although there may be a potential multiplicity of knowledge management position titles, the underlying knowledge management roles are much more common. Under the banner of *knowledge*

¹⁶ This distinction was also not important to TFPL (2003) where their classification included team members as one of their knowledge roles, regardless of the type of work they might be engaged in.

¹⁷ This term will be explained in section 2.3.7.

management practitioners TFPL (1999)¹⁸ listed among others the following roles: knowledge leaders, managers, navigators, synthesisers, editors, publishers, coaches, and mentors. Later these roles were re-defined as belonging to one of three levels of knowledge management roles (strategic leader; team leader; team member) as well as defining a role for everyone working in an organisation that is sharing knowledge (TFPL, 2003). This is similar to the view of Leonard (1995) that all employees are knowledge workers.

One of the most important roles in implementing knowledge management is that of the person driving the initiative. This role, although still in its infancy, often goes under the title of Chief Knowledge Officer (CKO). Earl and Scott (1999), Malhotra (2002) and Zack (1999b) all discussed the role of the CKO in managing knowledge management initiatives, where the CKO fulfils the 'strategic leader' role identified by TFPL (2003). Earl and Scott (1999) also recognised that there are a number of possible 'homes' for the CKO, including the information technology function and Human Resources function as well as the possibility of reporting directly to the Chief Executive Officer of the organisation¹⁹.

The actual knowledge management roles defined are likely to be dependent on the nature of the knowledge management projects or processes undertaken in the business (TFPL, 2003), with varying degrees of enthusiasm on the part of the knowledge workers involved. If knowledge management is seen as an adjunct to, and not an integral part of, the way the organisation operates, the natural reaction of those asked to participate in knowledge management activities is likely to be one of reluctance where that participation is over and above their normal duties, such as participation in a knowledge community (Wenger, 2000).

In summary, there are a series of roles emerging for the knowledge management world: from the senior executive charged with the responsibility of leading the knowledge management initiative, through specific role players in the knowledge

¹⁸ Davenport, Harris, De Long and Jacobson (2001), Malhotra (2002) and Zack (1999b), also identified a number of key knowledge management roles, although not in as much detail as TFPL.

¹⁹ If, as will be discussed in the next section, knowledge management plays a genuinely strategic role in the business, the CKO role, where it exists, should be reporting at the highest level, commensurate with the importance associated with the role of knowledge management as a whole.

management function (where this exists) to the knowledge workers themselves. This understanding of the knowledge roles in the organisation will provide a further useful element of the overall analytical framework for this research.

Recognising the various knowledge management roles to be played in the organisation leads on to the next issue to be explored, which is the nature of the practices and tools to be used by the role players in pursuit of their knowledge management objectives.

2.3.7 Knowledge management practices and tools

Many different terms can and have been used to describe the way in which knowledge management activities are carried out, such as practice, method, methodology, technique, technology, and tool (Allee, 1997; Binney, 2001; Bouthillier and Shearer, 2002; Davel and Snyman, 2005; Earl, 2002; Edwards and Shaw, 2004; Faul and Camacho, 2004; Fouche and Botha, 2002; Liebowitz and Chen, 2004; Skyrme, 1998; Stewart, 2002; Wensley and Verwijk-O'Sullivan, 2000).

Some authors use these terms (practice, method, methodology, technique, technology, and tool) without specific definition. Some use them as synonyms, whilst others use them as individual/unique aspects of an overall approach to knowledge management. For example, Wensley and Verwijk-O'Sullivan (2000:115) drew a distinction between technologies, methodologies and tools. According to them, a technology "is some human construct or artefact that potentially can enhance and enable human activities"; a methodology is "a set of ways of interacting with the technology," and a tool "is one aspect of a technology that is typically used to achieve some specific purpose or related set of purposes."

For the purposes of this research the following classification will be used:

- Practice: a method, or methodology used in achieving one or more knowledge management objectives (example: knowledge sharing)

- Tool: a specific instrument or technique or technology used to achieve one or more practices (example: a database is a tool or technology used to support knowledge sharing).

In surveying the literature it was found that three authors had attempted to classify knowledge management practices into a number of categories.

The approaches of Bouthillier and Shearer (2002) and Davel and Snyman (2005) to practices classification were based on knowledge processes whereas Allee (1997) did not use a process approach. These three attempts at an overall classification of practices are complemented by additional sources that provided a broader perspective as to a total list of practices relevant to implementing knowledge management. Table 2.7 presents a consolidated list of thirty-six knowledge management practices based on the opinions of all these authors (Allee, 1997; Binney, 2001; Bouthillier and Shearer, 2002; Davel and Snyman, 2005; Earl, 2002; Edwards and Shaw, 2004; Faul and Camacho, 2004; Fouche and Botha, 2002; Liebowitz and Chen, 2004; Skyrme, 1998; Stewart, 2002; Wensley and Verwijk-O’Sullivan, 2000). This consolidated list can be used as part of the analysis activities in this research project.

After action review/ Retrospects	Exit interviews	Learning centres/meeting rooms
Benchmarking	Expert networks	Libraries
Brainstorming	Expert forums	Measurement systems
Business intelligence ²⁰	Innovation workshops	Mentoring
Centre of excellence	Internal networks of knowledge workers	Office layout
Coaching (on the job training)	Internal surveys	Peer assists
Communities of practice	Knowledge audit	Process modelling
Competitive intelligence	Knowledge conference	Scenario planning
Discussion forums	Knowledge education/training (off the job)	Stories and storytelling (oral, written, drama, combined)
Embedding knowledge into processes	Knowledge fair/exchange	Suggestion schemes
Environmental scanning	Knowledge workshops	Surveys (internal and external)
Establishing new knowledge roles	Learn before, during, after Learning by doing	

Table 2.7 Consolidated list of knowledge management practices

²⁰ Business intelligence is sourced from within the organisation; competitive intelligence is sourced externally.

These knowledge management practices may be carried out (enabled) in a number of ways, including the use of one or more tools (technology). Table 2.8 shows a consolidated list of those tools identified by a number of authors surveyed in the literature (Binney, 2001; Bouthillier and Shearer, 2002; Davel and Snyman, 2005; Edwards and Shaw, 2004; Faul and Camacho, 2004; TotalKm.com, undated; Wensley and Verwijk-O’Sullivan, 2000)²¹.

Best practices databases	Knowledge maps
Bulletin and message boards	Knowledge portals
Chat rooms (online)	Knowledge repositories
Collaboration software/tools	Mailing lists
Creativity software	Mind-mapping software
Data mining/warehousing	Navigation tools
Data analysis tools	Neural computing
Decision support systems/tools	Online communities of practice
Directory of experts ²²	Question and answer databases
Document management systems	Radio
Electronic whiteboards	Search engines
E-learning systems	Television
E-mail	Tele-conferencing
Groupware	Video-conferencing
Information alerts	Virtual reality tools
Instant messaging	Visualising tools
Intelligent agents	Web tools (including crawlers, file sharing etc)
Internet/intranet/extranet	Workflow management
IT infrastructure	Yellow Pages ²³

Table 2.8 Consolidated list of knowledge management tools

Clearly, based on the evidence of the findings of this search of the literature there are many different practices (methods) and tools (technologies), which can be deployed in support of a knowledge management initiative. The contents of Table 2.7 and 2.8 will provide a useful reference point when the case study organisation is analysed later in this research report.

²¹ It goes beyond the scope of this research to produce a composite list of practices matched specifically to tools, in effect to combine Table 2.7 and Table 2.8. Binney (2001) and Davel and Snyman (2005) have already gone some way to achieving this.

²² Includes access to all experts listed in a specific type of Expert Yellow Pages.

²³ Includes access to all employees in the Yellow Pages.

One of the management practices identified in Table 2.7 was the Community Of Practice (COP). The COP is one of the most widely reported examples of a practice used in knowledge management initiatives (Allee, 1997; Binney, 2001; Bouthillier and Shearer, 2002; BSI, 2003a, 2003b; CEN, 2004; Collison and Parcell, 2001; Davel and Snyman, 2005; Elliott and O'Dell, 1999; Liebowitz and Chen, 2004; Ruggles, 1998; Rumizen, 2002; SAI, 2001, 2003; Sandrock, 2004; Skyrme, 1998; van den Berg and Snyman, 2003; Wenger, 2000). This research project included the evaluation of the case study organisation through a specific community of practice. It is therefore appropriate to explore this knowledge management practice in more detail.

The community of practice idea has been in existence for some time: “communities of practice are nothing new. They have been around for a long, long time - as long as human beings have learned together...communities of practice are everywhere,” (Wenger, 2000:207). A community of practice may be an informal, self-organised collaboration of people, within or between organisations, who share common practices, interests or aims. When the COP proves useful to its members over time, they may formalise its status by adopting a group name and a regular system of interchange through enabling tools (CEN, 2004). A community of practice may be used to share knowledge at the group or organisation level (Brown and Duguid, 1998).

Offering their interpretation of the definition of a COP, the BSI stated that, “they bring together people to share insights, develop expertise and to foster good practice through the exchange and creation of knowledge in a specific area,” emphasising that a COP focuses on, “building specific capability in the organisation and ensuring that this is protected and retained in the organisation as people move on,” (BSI, 2003a:34). Taking much the same approach, van den Berg and Snyman (2003) stated that the community is formed to share aspects of their work and to learn from each other, including sharing best practices, past experiences, insights and knowledge.

Wenger (2000) stated that a community of practice consists of three basic elements:

- “What it is about - the sense of joint enterprise that brings members together
- How it functions as a community - the relationship of mutual engagement that binds members together into a social entity. Members learn with one another.
- What capability its practice has produced - the shared repertoire of communal resources that members have developed over time through their mutual engagement,” (Wenger, 2000:208).

In discussing the composition of a community of practice, Wenger (2000:218) identified that typical categories of membership and participation include:

- “Core group - a small group of people whose passion and engagement energise the community
- Full membership - members who are recognised as practitioners and define the community
- Peripheral membership - people who belong to the community but with less engagement and authority
- Transactional participation - outsiders who interact with the community occasionally to receive or provide a service²⁴
- Passive access - a wide range of people who have access to artefacts produced by the community such as its publications, its website, or its tools.”

An example of communities of practice in action comes from Collison and Parcell (2001:10) who stated that in the case of British Petroleum (BP):

“People with common interests or discipline practices frequently form networks, or communities of practice, to share their know-how, either to improve the capability of each individual to do his or her job better, or to deliver on a common goal or objective” and that at BP “to make the best use of what BP knows, we build relationships with others who want to learn, and with those from whom we can learn. We call these sorts of knowledge-sharing groups ‘networks’ and ‘communities’. They are the key mechanisms for exchanging knowledge in BP,” (Collison and Parcell, 2001:38).

²⁴ An example of working with transactional members of the community is where input is used from communications specialists, graphic designers, instructional designers, and facilitators (SAI, 2001).

Some networks at BP are formal and have clear objectives, while others are less formal. The same authors added that COPs can build and apply common practices, develop common competences, add to common knowledge, and share ideas, tips, problems and solutions. Through accessing the knowledge held by the community, each individual can operate more effectively.

The nature of the community of practice as outlined in this section will be applied in the analysis of the case study organisation in Chapter 7.

2.4 Knowledge management and strategy

The interest in strategy in the business world can be traced back to the early 1960s to authors such as Ansoff, Drucker and Levitt, and later between 1973 and 1982 to works from Mintzberg, Ohmae and Porter (Koch, 1995).

A working definition of strategy would be useful for this research. Many definitions have been published (Ansoff, 1984; David, 1997; Koch, 1995; Porter, 1980). The one selected for this project is from Ansoff (1984:31) who defined strategy as, “a set of decision-making rules for guidance of organisational behaviour.” In more detail, the definition deals with four elements:

- Yardsticks by which performance is measured: objectives (quality measures) and goals (quantity measures)
- Rules about the relationship with the external environment (what to develop, where and to whom to sell, how to gain advantage over competitors): the business strategy
- Rules about internal relations and processes: the organisational concept
- Rules by which the firm conducts its day-to-day business: operating policies (Ansoff, 1984).

A strategy is required for successful implementation of knowledge management since, “effectively implementing a sound knowledge management strategy and becoming a knowledge-based company is seen as a mandatory condition of success for

organisations as they enter the era of the knowledge economy,” (Binney, 2001:33). In addition, “the most important context for guiding knowledge management is the firm’s strategy,” (Zack, 1999a:125). This relationship will now be explored in more detail.

2.4.1 Relationship between knowledge management strategy and business strategy

Accepting that an organisation needs a strategy, what needs to be understood is the relationship between business strategy and knowledge management strategy. A number of notable contributions have been made to this issue (Haggie and Kingston, 2003; Hansen *et al.*, 1999; Hofer-Alfeis and van der Spek, 2002; Manville and Foote, 1996; Smith and McKeen, 2003; Snyman and Kruger, 2004; Zack, 1999a, 2002).

Manville and Foote (1996) made the following observations, with a clear call to put strategy first:

- Knowledge-based strategies begin with strategy, not knowledge
- Knowledge-based strategies are not strategies unless you can link them to traditional measures of performance
- Executing a knowledge-based strategy is not about managing knowledge; it is about nurturing people with knowledge.

Hansen *et al.* (1999:114) seemed to agree when they stated that, “competitive strategy must drive knowledge management strategy...it is important for managers to make the explicit connection between their company’s competitive strategy and how they use knowledge to support it.” This point was also made by Zack who stated that, “the most important context for guiding knowledge management is the firm’s strategy,” (Zack, 1999a:125) and that firms need a “pragmatic but theoretically sound” knowledge strategy (Zack, 1999a:126). Zack (2002) later added that knowledge management strategy guides and defines the processes and infrastructure (organisational and technological) for managing knowledge. Hofer-Alfeis and van der Spek (2002) put the focus more on the enablement of management when they observed that, “the knowledge management strategy or roadmap is targeted at

knowledge management managers and their cross-business responsibilities to enable knowledge management,” (Hofer-Alfeis and van der Spek, 2002:26).

It is also important to note that, “different situations require different strategies,” (Haggie and Kingston, 2003: online)²⁵ and that, “the range of different ‘knowledge management strategies’ on offer can be bewildering and it is often unclear where to begin in choosing a strategy for a particular situation,” (Haggie and Kingston, 2003: online).

A more recent contribution came from Snyman and Kruger (2004) who provided further endorsement for the recognition of the link between knowledge management strategy and business strategy when they stated that, “the true power of knowledge lies in its ability to positively influence, and enable, the business strategy,” (Snyman and Kruger, 2004:7). However, they also identified that, “unfortunately, there is no generic model incorporating knowledge management strategy formulation with business strategy formulation,” (Snyman and Kruger, 2004:17).

Recognising the debate that exists concerning the relationship between knowledge management and business strategy, and the contributions made by the various authors mentioned in this section, the definition of a knowledge management strategy selected for use in this research is: “a declaration of how the organisation will use knowledge management methods, tools, processes, and practices to achieve business objectives by leveraging its content, people and processes and how [knowledge management] will support the organisation's overall strategy,” (CEN, 2004:online). This selection is based on the focus on the knowledge management methods, tools, processes, and practices, an understanding of part of which forms a key element of this research.

²⁵ For example, there are two key ways that knowledge management can be used to support business strategy: support for performance, where knowledge is used to improve quality and service; support for productivity, where knowledge can be used to shorten cycle times for development and delivery (Smith and McKeen, 2003:online).

2.4.2 Approaches to knowledge management strategy

A search of the literature revealed a number of different types of knowledge management strategy that can exist, as shown in Table 2.9. Each of the sources will be reviewed in turn.

APQC (O'Dell <i>et al.</i> , 1999) six strategies
Hansen <i>et al.</i> , (1999) two strategies
Zack (1999a) nine strategies
Binney (2001) six strategies
Earl (2001) seven schools (strategies)
Sveiby's (2001) three strategies
Von Krogh <i>et al.</i> (2001) four strategies
Day and Wendler (Haggie and Kingston, 2003) five strategies

Table 2.9 Knowledge management strategies²⁶

The APQC identified six knowledge management strategies (O'Dell *et al.* 1999):

- Knowledge strategy as business strategy: a comprehensive, enterprise-wide approach to knowledge management, where frequently knowledge is seen as the product
- Intellectual asset management strategy: focuses on assets already within the company that can be exploited more fully or enhanced
- Personal knowledge asset responsibility strategy: encourages and supports individual employees to develop their skills and knowledge as well as to share their knowledge with each other
- Knowledge creation strategy: emphasises the innovation and creation of new knowledge through research and development
- Knowledge transfer strategy: transfer of knowledge and best practices in order to improve operational quality and efficiency
- Customer-focused knowledge strategy: aims to understand customers and their needs and so provide them with exactly what they want.

²⁶ This table is shown in chronological order. Several views on knowledge management strategy were introduced as models or frameworks in section 2.3.4: O'Dell *et al.*, 1999; Hansen *et al.*, 1999; Binney, 2001; Earl, 2001; Sveiby, 2001.

These strategies can be addressed individually, or in combination, to achieve the objectives of the organisation.

The codification versus personalisation strategy advocated by Hansen *et al.* (1999), was based on using the combination of a primary strategy (either codification or personalisation) and secondary strategy (either codification or personalisation) on an 80:20 basis, depending on a number of factors²⁷ but the authors warned that, “executives that try to excel at both strategies risk failing at both,” (Hansen *et al.*, 1999:112)²⁸.

Zack (1999a) recognised the validity of the ‘tacit versus explicit’ concept of knowledge and proposed mapping knowledge as a key activity contributing to strategy formulation. Having completed a mapping exercise it would be possible to identify knowledge gaps. Zack discussed two key gaps: the knowledge gap (either internal or external in nature) and the strategic gap (the difference between what a firm is doing and what it should be doing). The strategy formulated would be directed to closing those gaps.

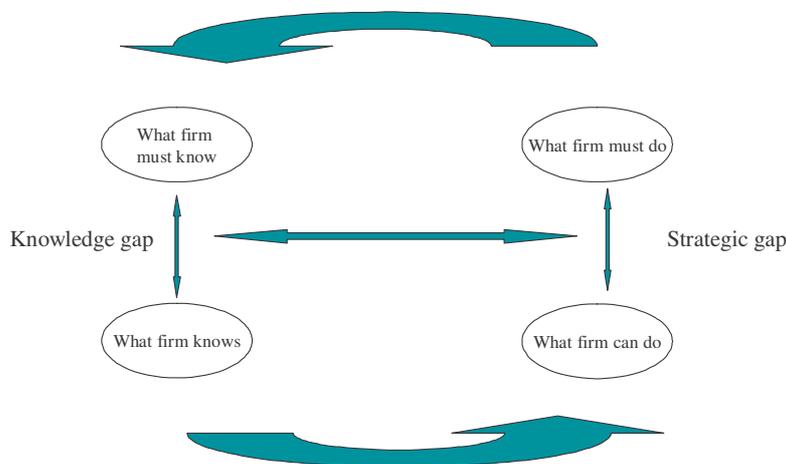


Figure 2.2 Strategic gap model
(Source: Zack, 1999a)

²⁷ As discussed in section 2.3.4, knowledge management models and frameworks.

²⁸ Support comes from Grover and Davenport (2001:8) who stated that, “companies using codification approaches rely primarily on repositories of explicit knowledge. Personalisation approaches imply that the primary mode of knowledge transfer is direct interaction among people. Both are necessary in most organisations but an increased focus on one approach or the other at a given time within a specific organisation may be appropriate.”

To close the gaps identified in Zack’s model (Figure 2.2), he proposed an implementation based on exploitation (internal gap closure) or exploration (external gap closure). Those firms combining exploitation with exploration he called *innovators*. Those firms who closely integrate their knowledge regardless of whether the source is internal or external are *unbounded*. Zack suggested combining an external/internal focus with an *exploiter/explorer/innovator* use of knowledge to build a knowledge strategy grid with *conservative* (based on exploiting existing internal knowledge) and *aggressive* extremes (based on unbounded innovation), as shown in Table 2.10.

	Use of knowledge		
Primary source of knowledge	Exploiter	Explorer	Innovator
Unbounded			Aggressive
External			
Internal	Conservative		

Table 2.10 Strategic implementation matrix
(Source: Zack, 1999a)

Binney’s (2001) contribution to knowledge management strategy was based on his ‘Knowledge Management Spectrum’ (as introduced in section 2.3.4), where he grouped a number of knowledge management applications into six major elements or strategies, whilst Earl’s (2001) contribution was based on the seven schools of knowledge management he identified, each of which could be treated as an individual strategy or used in combination under the umbrella of a single multi-dimensional knowledge management strategy (see section 2.3.4). Sveiby’s (2001) knowledge management strategy was based on his analysis of the three knowledge asset types (internal structure, external structure and individual competence) and the relationship between them (also briefly mentioned in section 2.3.4).

Von Krogh *et al.* (2001) developed a framework of four generic strategies for managing knowledge (see Table 2.11), which drew heavily on a case study at Unilever. Their work described how the two core processes of knowledge creation and transfer (sharing) are central to the strategies identified. They suggested that the strategy be based on the combination of knowledge domains (existing/new) and knowledge processes (transfer/creation) and that organisations could formulate their knowledge strategy by examining how each strategy impacts on the strategic goals of efficiency, innovation and managing risk.

Knowledge domain	Knowledge process	
	Transfer	Creation
Existing	<i>Leveraging strategy</i>	<i>Expanding strategy</i>
New	<i>Appropriating strategy</i>	<i>Probing strategy</i>

Table 2.11 Generic strategies model
(Source: Von Krogh *et al.*, 2001)

The last of the major views on knowledge management strategies identified was from Day and Wendler (cited in Haggie and Kingston, 2003). Their research identified five strategies employed by large corporations:

- Developing and transferring best practices
- Creating a new industry from embedded knowledge
- Shaping corporate strategy around knowledge
- Fostering and commercialising innovation
- Creating a standard by releasing proprietary knowledge.

Taken together, these sources (as listed in Table 2.9) do indeed represent the ‘bewildering’ choice identified by Haggie and Kingston (2003). The authors’ strategies vary from as few as two to as many as nine; there are a total of nearly forty strategies identified. Some strategies are common or very similar (such as the emphasis on create/transfer from O’Dell *et al.* (1999) and Von Krogh *et al.* (2001)),

whilst others are unique (such as the ‘creating a standard by releasing proprietary knowledge’ strategy of Day and Wendler (Haggie and Kingston, 2003).

As has already been identified earlier in this chapter, “the most important context for guiding knowledge management is the firm’s strategy,” (Zack, 1999a:125). Choosing between the possible strategies identified in Table 2.9 is addressed next.

2.4.3 Selecting a knowledge management strategy

Although many of the authors have recommendations as to how to choose between the strategies they propose, they do so within the confines of the strategy model as they themselves have compiled it. Only Haggie and Kingston (2003), independent of a strategy model they were proposing, identified a number of factors relating to the overall business strategy which might influence the selection of an appropriate knowledge management strategy, using seven broad dimensions or groups of factors to assist in the task, as shown in Table 2.12.

Factor	Examples
Current/planned knowledge management strategy	Goals, desired applications, technology capabilities
Business sector characteristics	Highly regulated, innovative, risk factors, competitiveness, globalisation, etc
Strengths, weaknesses, opportunities, and threats (SWOT) of the business	Reputation, leading product, changing regulations, acquisitions and mergers, globalisation, etc
Value focus strategies ²⁹	Operational excellence, product leadership or customer-focused
Organisational structure	Hierarchical, loose
Organisational culture	Team spirit, individualistic, sharing, learning
Nature of knowledge	Explicit, implicit or tacit; Task type

**Table 2.12 Knowledge management strategy selection
(Source: Haggie and Kingston, 2003)**

This has the merits of being broad (in terms of the number of factors addressed) as well as flexible (in terms of the relative importance or weighting given to each of the factors). Using the classification as detailed in Table 2.12, combined with identifying

²⁹ These strategies were first identified in 1995 by Treacy and Wiersma (APQC, 2000).

the ‘best fit’ between the various strategies advocated by the authors listed in Table 2.9, represents one possible way to undertake knowledge management strategy selection³⁰.

2.4.4 Contents of a knowledge management strategy

Having identified which strategy to implement, the next issue is what precisely that strategy comprises. Many of the authors in Table 2.9 have little to say on what precisely comprise the contents of a knowledge management strategy. The most comprehensive source identified from the literature was from BSI (2003a:32) who identified eleven elements of a knowledge management strategy:

- Organizational priorities for knowledge management (in terms of strategy and market needs)
- Knowledge management vision and mission
- Knowledge management operating plan (objectives and perceived benefits)
- Knowledge management budget
- Plan for knowledge management technical infrastructure
- Proposed knowledge management organisational structure
- Plans for knowledge management communities of practice
- Proposed knowledge management metrics and knowledge sharing incentives and rewards
- Plans for knowledge management training
- Plans for communication of knowledge management strategy to internal and external stakeholders
- Plan for integrating knowledge management and organisational strategy.

These, then, represent the elements of a strategy definition, which in the ultimate application would form the ‘table of contents’ of an actionable knowledge management strategy document. What remains to be determined are the actual steps to take in implementing the chosen strategy.

³⁰ This activity would form part of the development of a specific strategy designed to best meet the needs of the organisation and would typically be achieved as part of the implementation process which is about to be discussed.

2.4.5 Knowledge management strategy implementation

A review of the literature identified eight significant contributions to the subject of implementing a knowledge management strategy (each listed here with the number of steps recommended): Zack (1999a) fourteen steps; APQC (2000) five steps; Tiwana (2000) ten steps; Earl (2001) six steps; Ndlela and du Toit (2001) four steps; BSI (2003a) eight steps; Smith and McKeen (2003) six steps; Snyman and Kruger (2004:17) four steps. The specifics of the recommendations from each of these sources are listed in Table 2.13³¹.

<p>Zack (1999a) (These are the steps proposed by Zack formulated as questions) How do you want to play the game? What do you need to know? What do you know? What is the internal knowledge gap? What do your competitors know? What is your external knowledge gap? What is your learning cycle? What are your competitors' and industry learning cycles and capabilities? What is your learning gap? What is your internal strategic gap? What is your external strategic gap? What is your industry cycle strategic gap? What is your new current and future strategy? What's your knowledge strategy?</p>
<p>APQC (2000) Get started Develop knowledge management strategy Design and launch knowledge management initiatives Expand and support knowledge management Institutionalise knowledge management</p>
<p>Tiwana (2000) Analyse the existing infrastructure Align knowledge management and business strategy Design the knowledge management infrastructure Audit existing knowledge assets and systems Design the knowledge management team Create the knowledge management blueprint</p>

³¹ In several cases the implementation steps are posed as questions which need to be answered as part of the implementation project.

<p>Develop the knowledge management system</p> <p>Deploy, using the results-driven incremental methodology</p> <p>Manage change, culture and reward structures</p> <p>Evaluate performance, measure ROI, and incrementally refine the knowledge management system</p>
<p>Earl (2001)</p> <p>(These are the steps proposed by Earl formulated as questions)</p> <p>What is the knowledge business vision?</p> <p>What is the business performance gap?</p> <p>How could knowledge make a difference?</p> <p>What are the alternative knowledge management initiatives?</p> <p>What is the degree of fit and feasibility?</p> <p>What is the knowledge management program?</p>
<p>Ndlela and du Toit (2001)</p> <p>Enterprise analysis: the enterprise's orientation to knowledge management</p> <p>External analysis: the external elements of the enterprise including the identification of threats and opportunities</p> <p>Decide and formulate a suitable knowledge management strategy: depends on the enterprise's vision and mission and how knowledge management can contribute</p> <p>Implement and evaluate knowledge management strategy: prioritise activities and ensure integration with other business processes</p>
<p>BSI (2003a)</p> <p>Setting up appropriate communications channels</p> <p>Organising content for efficient access and to identify gaps</p> <p>Ensuring well-informed support team is in place</p> <p>Communicating to the sponsoring/supporting community or the whole organisation</p> <p>Measuring progress</p> <p>Create a compelling rationale and business case for knowledge management to senior management</p> <p>Establishing pilot initiatives to achieve early wins and measurable business gains</p> <p>Implement a communication/change strategy</p>
<p>Smith and McKeen (2003)</p> <p>Understanding the strategic goal</p> <p>Strategic analysis</p> <p>Strategic direction</p> <p>Specific knowledge management initiatives</p> <p>Strategic case for knowledge management</p> <p>Executing a knowledge management strategy</p>
<p>Snyman and Kruger (2004)</p> <p>Analysis of the internal and external environment (including identifying the strategic gap)</p> <p>Setting objectives (intended to close the strategic gap identified in the previous step)</p> <p>Establishing strategic initiatives (including development of the strategic knowledge management plan)</p> <p>Strategy institutionalisation</p>

Table 2.13 Knowledge management strategy implementation steps³²

³² This table is shown in chronological order.

Some of the implementation steps are closely tied to the strategies identified by the author (such as for Zack, 1999a) whereas others are more generic and could be applied whatever the source of the chosen strategy (such as APQC, 2000; Snyman and Kruger, 2004). Some of the steps described are similar between sources (such as the internal/external analysis of Ndlela and du Toit, 2001; Smith and McKeen, 2003; Snyman and Kruger, 2004; measurement/evaluation for Tiwana, 2000), whereas others contain unique elements not found elsewhere (such as the learning cycle of Zack, 1999a). The most common factor between all of these implementation recommendations is the sense of a journey that needs to be undertaken in order to achieve the goal of a successful knowledge management strategy implementation. No one approach to implementation is 'right' or 'wrong' as each has its merits. What is perhaps a deciding factor is how well the recommended steps fit the specific situation in an organisation.

2.5 Summary

In line with the overall research problem in this study, the purpose of this chapter was to explore the nature of knowledge and knowledge management. This was achieved by a non-empirical review of the literature on those two subjects.

What became clear was that there is no single, generally agreed definition for either knowledge or knowledge management, but there is a general agreement on their importance to the success of today's organisations, particularly when viewing knowledge as a resource which can contribute to the success of the organisation.

The investigation into the nature of knowledge management included an understanding of the literature on objectives, success factors, models/frameworks, processes, roles, practices and tools. The chapter concluded with an in-depth look at knowledge management and strategy, and identified a number of alternative strategies and recommendations for the implementation of a knowledge management strategy. The concepts, principles, models and views identified from the literature served as a guide both in the conduct of the research as well as in the analysis of the empirical data findings.

The research for this chapter confirmed several important issues for this research study as a whole. First, that the sharing of knowledge is a recognised practice in implementing knowledge management. Secondly, that stories and storytelling are recognised in the literature as practices for knowledge sharing. Third, that the community of practice is a recognised knowledge management practice.

In line with the main problem in this research study, the focus of the next chapter will be an understanding of the key ideas associated with a particular aspect of knowledge sharing: the use of stories and storytelling to share knowledge.

3 Stories and storytelling

3.1 Introduction

The purpose of this chapter, in line with the overall research problem, is to review the sources identified during the literature search about the nature of stories and storytelling, with specific reference to their use as knowledge sharing practices as part of an organisation's knowledge management strategy. The use of stories through storytelling is a valuable knowledge management practice because it is already so deeply a part of the general culture that is easy to adapt to knowledge management goals and objectives¹ and "the significance of story and storytelling is apparent when one reviews the current body of published research," (Boyce, 1995:107).

This chapter starts with a section on the nature of stories and storytelling. It includes a discussion about the origins and definitions of stories and storytelling, the formats in which stories can be told and the structure of the stories. There is then a review of the various purposes or uses to which stories might be put and the benefits and pitfalls that arise from such use. A number of models for the use of stories and storytelling have been identified and these are analysed and a model for use as an analytical tool is selected. The chapter concludes with a discussion about the implementation of stories and storytelling as part of a knowledge management strategy.

3.2 The nature of stories and storytelling

3.2.1 The origins and definition of stories and storytelling

Stories and the telling of stories have probably been with us since the beginning of human existence - in one sense stories and storytelling help to define the nature of humanity. Stories, including myths, legends, and folktales (McLellan, 2002; Reamy,

¹ Shah and Patrick (2002:41) stated that, "although knowledge management gurus and management journals have been writing about storytelling for a number of years, humankind has been doing it since it began."

2002) have been used to pass on wisdom, knowledge, and culture² for thousands of years³.

The word ‘story’ has its origins in the 13th century, with roots in both French and Latin, and literally means an account of incidents or events. A story may be a fictional narrative shorter than a novel or a recital of real or imaginary happenings. It has synonyms in narration, narrative, tale, and yarn (Merriam-Webster’s Collegiate Dictionary, 2002). The English word ‘story’ and the related words ‘narrate’ and ‘narrative’ have etymological roots in Latin and Greek words for knowing, knowledge and wisdom (Gill, 2001). Some authors (BSI, 2003b; Denning, 2001, 2004b; Hannabus, 2000; Smart, 1999) have used the terms ‘narrative’ and ‘story’ interchangeably⁴. For the purposes of this research the term ‘story’ will be used in preference to the words ‘narrate’ and ‘narrative’.

A comprehensive review of story-related research from 1978 to 1991 revealed that stories typically possess a setting, a cast of characters and a plot that resolves some sort of crisis (Hansen and Kahnweiler, 1993) while a second study which traced the history of the development of studies of stories and storytelling from the 1970s to 1998 offered this definition: “a story describes a sequence of actions and experiences done or undergone by a certain number of people, whether real or imaginary,” (Ricoeur in Boje, Luhman and Baack, 1999:342). Neither of these definitions is ideal. That of Hansen and Kahnweiler (1993) is too narrowly focused on ‘crisis’ whilst the second definition (Ricoeur in Boje *et al.*, 1999) does not adequately encompass the setting in the organisation for the purposes of this research.

Therefore, the definition of a story (developed by the researcher) used for the purposes of this research is that, “a story describes a sequence of decisions, actions or events (past, present or future; real or imaginary) which involve a number of

² Sole and Wilson (2002:1) observed that “storytelling is traditional and even ancient means of passing on wisdom and culture.”

³ Denning (2004b:122) wrote of “the age-old practice of storytelling.”

⁴ BSI (2003b) described narrative as the capture, interpretation, distribution and stimulation of knowledge through story, while Denning (2004b:123) refers to “ a story -- that is, a narrative that links a set of events in some kind of causal sequence.”

characters (named or unnamed), in an organisation where a business challenge or opportunity must be addressed.”

Whilst not being restrictive in terms of the format (for example oral versus written) nor the purpose (objective) for which the story is used, this definition recognises several key attributes of a story:

- That decisions, actions and events may all be included as part of the story
- That events of the story are not limited in terms of timescale (offering flexibility in terms of the construction and purpose of the story)
- That it may involve real or imaginary events or characters (allowing flexibility to base the story on a combination of factual and/or fictional circumstances and role players/characters)
- The setting is within an organisation (but may include individuals, teams and the organisation as a whole)
- Both business challenges/problems and opportunities may be addressed.

This chapter discusses both stories and storytelling. If a ‘story’ is the content then ‘storytelling’ is the method or way in which the story is told. The two often go together and may be inter-dependent. If the definition given of a story presented here is accepted, then it is still necessary to identify what ‘storytelling’ is. It has been suggested that, “storytelling is an act of creating future opportunities,” (Buckler and Zien, 1996:405) whilst storytelling used as part of a knowledge management strategy has also been defined as the sharing of knowledge and experiences through narratives and anecdotes in order to communicate lessons, complex ideas, concepts, and causal connections (Sole and Wilson, 2002). Neither of these definitions is ideal. The first says too little about the possible ways in which the telling of the story may be accomplished, whilst the second adequately explains possible purposes without explaining exactly how to tell the story.

For the purposes of this research storytelling is therefore: “the practices, tools⁵ and role players involved in communicating the contents of a story or stories to the audience however defined.”

This definition recognises that:

- There is a choice of practices (methods, methodologies) and tools (instruments, techniques, technologies) to use when the story is told (narrated)
- There is a choice of the role players (individuals or groups/teams) who are involved in the act of the story being told
- That the audience is to be defined (which may include individuals or groups, internal or external, of whatever composition).

Given the definitions of stories and storytelling presented here it is useful to explore what formats and structures might be used where stories are part of a knowledge sharing strategy, the focus of this research.

3.2.2 Story formats

Since earliest times stories have been told in many formats and using a variety of media. These formats include: oral delivery; written texts (such as The Holy Bible); painting (rock painting and other forms) and tapestry (such as the world-famous Bayeux tapestry). Table 3.1 indicates some of the formats⁶ identified in the management literature for the telling of stories in organisations. These authors, in some cases, express a strong preference for a particular format (Armstrong (1992) and Roth and Kleiner (1997), for example, and the use of the written format) while others (such as Edmond and Tilley, 2002) have a much broader view of the ways in which stories might be told.

⁵ Where the difference between practices and tools has been defined in section 2.3.7.

⁶ Where format involves a combination of both practices and tools.

Source	Story format indicated
Armstrong (1992)	Written only
Roth and Kleiner (1997)	Written only, with a specific two-column layout
Jensen (1999)	Oral and written form, through images, using drama
Snowden (1999a, 2000b, 2000c)	Strong preference for oral, uses some media support ⁷
SAI (2001).	Oral plus illustrated images, engaging presentations
Denning (2000, 2001, 2002, 2004a, 2004b)	Mainly oral, but uses written format as well
Edmond and Tilley (2002)	Primary focus on industrial theatre, complemented by comic books, oral storytelling, song, dance, chanting
BSI (2003a)	Oral complemented by the use of images and objects
CEN (2004)	Oral storytelling; drama; written

Table 3.1 Story formats

Thus, as shown in Table 3.1, forms of story delivery can include drama (possibly on stage or on radio, film, or television) as well as a variety of print (magazine, books, various types of images) and online media (circulated via email, web sites, chat-rooms and so on). All of these forms involve individual or groups of storytellers and listeners. The implications for this research are that the formats (practices and tools) used for storytelling identified in Table 3.1 provide a useful basis for analysis of the empirical finding in the case study organisation.

Of particular interest, given the setting of this research in the South African mining industry, is the discussion by Edmond and Tilley (2002) of the use of industrial theatre at Harmony Gold Mining Company (HGMC) in South Africa. Those authors reported on the combined use of comic books and industrial theatre⁸ to support the

⁷ Snowden (2000b) has discussed the use of multiple media for the delivery of a story for an IBM internal training course. The story was delivered as a voice recording from a single narrator, reinforced by cartoons. The use of the story, particularly using multiple media, meant that participants increased the speed with which they went through the training modules.

⁸ Edmond and Tilley (2002: online) observed that “industrial theatre...does not stand alone as the answer to employee communication problems. It is only effective within the context of an overall strategic communication plan with carefully managed objectives.” They also stated that industrial theatre also has the significant disadvantages of being expensive and difficult to manage.

‘Harmony Way’, an initiative to introduce employees of HGMC to aspects of the company’s culture.

It is also important when analysing the use of stories and storytelling to examine the possible options for the structure and flow of the story itself. This follows in the next section.

3.2.3 The structure of stories

Aristotle defined the classic ‘beginning, middle, end’ story structure more than 2,300 years ago and this has been used by countless others, “since it seems to reflect how the human mind wants to organise reality,” (Ibarra and Lineback, 2005:67). In this section Aristotle’s structure will be used as a departure point when looking at the findings from the literature search. Table 3.2 indicates the finding of the literature review on story structures.

Source	Story structure indicated
Hattersley (1997)	<ul style="list-style-type: none"> • Opening strategies: getting their attention. • Building strategies: hold their attention. Use episodic delivery; build the tension • Concluding strategies, driving home the point.
Reamy (2002)	<ul style="list-style-type: none"> • Equilibrium of the situation • Disruption of the situation occurs • Recognition of action required • Effort to restore the equilibrium • Results of efforts
BSI (2003a)	<ul style="list-style-type: none"> • The main character/setting (who and where?) • The task and mission (what?) • The helpers (who else?) • The obstacle (what problems?) • The way the characters cope with the obstacle (how?) • The outcome (after the story -- what

	happened?)
Denning (2004b)	<ul style="list-style-type: none"> • A description of the problem • The setting • The solution
Parkin (2004)	<ul style="list-style-type: none"> • Once upon a time -- the status quo, where the story begins • Then one day -- the characters encounter some problems or challenge • Because of this -- the story changes direction to deal with the problem • The climax -- the characters deal with the challenge • The resolution -- the results of the action • The moral -- their lives are changed
Ibarra and Lineback (2005)	<ul style="list-style-type: none"> • Introducing a protagonist the listener cares about. • Providing a catalyst compelling the protagonist to take action. • Trials and tribulations. The story's second act commences as obstacles produce frustration, conflict, and drama. • A turning point. This represents a point of no return, which closes the second act. • A resolution. This is the third act in which the protagonist either succeeds magnificently or fails tragically

Table 3.2 Structure of stories

It can be seen that there is some commonality in the views of the six sources outlined in Table 3.2. In several cases there is a sense of progress being made (almost in the sense of a journey being undertaken) towards a successful conclusion, albeit whilst encountering hurdles or difficulties along the way. Some authors (Parkin, 2004; Reamy, 2002) are explicit about the definition of the Aristotle-like ‘beginning, middle, end’ structure. On the other hand, other authors (Denning, 2004b; Hattersley, 1997), whilst also following the same overall structure, have a less restrictive approach to the detailed structure of the story. Particularly restrictive seems the approach of Ibarra and Lineback (2005) where they defined ‘acts’ which may not offer the flexibility required in some stories. Overall, however, there is a reasonable

degree of consistency between the views of the authors surveyed in Table 3.2, and their definitions of story structure will be useful when it comes to analysing the stories used in the case study organisation.

In summary, according to these authors (Table 3.2) and since the time of Aristotle, a story has a beginning, a middle and an end; it includes a flow of events that happen involving characters who undergo an experience during the story; a story will often involve a challenge or opportunity with an eventual resolution. Attention will now be turned to the possible uses, benefits and pitfalls arising from the implementation of storytelling, as part of a knowledge sharing strategy in an organisation.

3.3 The use, benefits and pitfalls of stories and storytelling

3.3.1 The uses of stories in organisations

Stories have long been recognised as useful in organisations. Thirty years ago it was observed that:

“If accounting and finance are the backbone of organisations, then the stories which permeate all organisations of any size are their lifeblood. Stories are so central to organisations that not only do organisations depend on them, but stronger still, they couldn't function without them. Big or small, every organisation is dependent upon countless stories for its functioning,” (Mitroff and Kilmann, 1975:18).

Accepting this view, it should be expected that stories can be used for many different purposes within organisations. Examples of the many possible uses of stories and storytelling can be found in Table 3.3.

Source	Use to which stories and storytelling can be put
Mitroff and Kilmann (1975)	<ul style="list-style-type: none"> • For problem solving
Martin, Feldman, Hatch and Sitkin, (1983)	<ul style="list-style-type: none"> • Generate, as well as reflect, changes in organisations
Wilkins (1984)	<ul style="list-style-type: none"> • Passing on a culture
Hansen and Kahnweiler (1993)	<ul style="list-style-type: none"> • To exert significant influence on employee attitudes • As a means of generating commitment
Boyce (1995)	<ul style="list-style-type: none"> • Amending and altering the organisational reality • Preparing a group for implementing plans
Buckler and Zien (1996)	<ul style="list-style-type: none"> • Foster innovation
Stewart (1998)	<ul style="list-style-type: none"> • Knowledge sharing
Kaye and Jacobson (1999).	<ul style="list-style-type: none"> • Communicate a vision • Build a sense of shared goals and meanings • Create community among diverse people • Making a new start • Calming employees during a crisis • To tell personal histories • Explain events and circumstances • Outline future possibilities • Inspire and motivate people to share the same vision
Smart (1999)	<ul style="list-style-type: none"> • In the creation and use of specialized economic knowledge
Snowden (1999a)	<ul style="list-style-type: none"> • To understand the current situation • Anticipate possible futures • To prepare the organisation for action
Brown and Duguid (2000a)	<ul style="list-style-type: none"> • To tell something exciting • To have fun • To entertain someone or keep them in suspense • To let others know what we are thinking • To express our feelings • To teach somebody something or to explain something • To save our experiences forever
Shaw, Brown and Bromiley (2000)	<ul style="list-style-type: none"> • In strategic planning function to gain a shared understanding and to encourage teamwork
Brown and Duguid (2000b)	<ul style="list-style-type: none"> • To develop a common outlook
Snowden (2000b)	<ul style="list-style-type: none"> • Allow the communication of complex ideas

	<ul style="list-style-type: none"> • Means of mapping knowledge within the organization • Embedding sustainable lessons learned
Gill (2001)	<ul style="list-style-type: none"> • Diffusing knowledge • Capturing what is tacit • Creating a memory framework
SAI (2001)	<ul style="list-style-type: none"> • Where the organisation has come from • Where it wants to go • Significant milestones
Swap, Leonard, Shield and Abrams (2001)	<ul style="list-style-type: none"> • Detailed narrative of past management actions • Reflect organisation norms, values, and culture
McLellan (2002)	<ul style="list-style-type: none"> • Articulating and focusing vision • A tool for learning and communicating important institutional knowledge about effective business practices, • Adapting to innovation • Conceptualising and identifying challenges and opportunities • Provide a road map which outlines all of the actions and tasks which need to be accomplished
Reamy (2002)	<ul style="list-style-type: none"> • Diffusing knowledge • Capturing what is tacit • Creating a memory framework • As cautionary tales (horror stories) • Success stories • Lessons learned • Bonding stories
Sole and Wilson (2002)	<ul style="list-style-type: none"> • Communicate embedded knowledge/share tacit knowledge • Develop trust and commitment/resolve conflicts • Innovation and new product development • Kickstarting a new idea (in a team) • Learning/facilitate unlearning • Mending relationships (within and between teams) • Organisational renewal • Sense-making • Share norms and values/generate emotional connection • Sharing wisdom (within and between teams) • Simulate problem-solving • Socialisation of new employees

	<ul style="list-style-type: none"> • Socialising new members (team building)
BSI (2003a)	<ul style="list-style-type: none"> • Get people talking • Help create connections between people and ideas • Inspire imagination and action • Render abstract concepts meaningful • Allow multiple perspectives to emerge • Create sense, coherence and meaning • Communicate powerful messages in a compelling way to any audience
CEN (2004)	<ul style="list-style-type: none"> • To describe complicated issues • Explain events • Communicate lessons learned • Bring about cultural change
James and Minnis (2004)	<ul style="list-style-type: none"> • To sell products • Generate idea buy-in • Develop and cultivate corporate culture • Manage change • Transfer knowledge
Parkin (2004)	<ul style="list-style-type: none"> • To communicate the future of the organisation clearly and enthusiastically • An aid to memorable learning • To encourage individuals to discuss and share their own fears or concerns about change
Brown, Denning, Groh and Prusak (2005)	<ul style="list-style-type: none"> • To solve problems • Make decisions • Manage change • Buy into new ideas • Exemplify corporate culture • Transfer knowledge

Table 3.3 Uses of stories and storytelling⁹

The views of the thirty-nine authors identified in Table 3.3 are not exclusively limited to material with a focus on knowledge management (the term was in any case not widely in use prior to the mid-1990s, and several of the references date from before then). Some authors have a narrow focus (quoting only one or only a few uses for storytelling – such as Buckler and Zien, 1996; Mitroff and Kilmann, 1975; Wilkins, 1984), whilst others see a very broad role for the use of stories (such as Kaye and

⁹ This table is presented in chronological order.

Jacobson, 1999; Sole and Wilson, 2002). At least one group of authors restrict their interest in terms of the application area (such as Shaw *et al.*, 1998; Smart, 1999), whilst most are not restrictive in terms of the application of the use of stories.

There is a distinct commonality for the majority, however, in the relationship to the management of knowledge in the uses of stories which they identified: several specifically mention ‘knowledge transfer’ or use very similar terminology: stories are widely recognised and have been for many years, as a way of sharing knowledge in organisations. This provides support for the research problem and will provide a useful reference point for the analysis of the use of stories in the case study organisation.

3.3.2 Benefits of the use of stories and storytelling

Whatever the use (or purpose) of the story, there may be a number of benefits to be achieved. For example, significant benefit can come from the use of stories to share knowledge and meaning and stories allow the communication of complex ideas in a simple, memorable form (Scholtz, 2003; Snowden, 2000b; Sole and Wilson, 2002)¹⁰. A search of the literature revealed that a number of authors have identified benefits from the use of stories and storytelling, as depicted in Table 3.4.

¹⁰ A possible explanation as to why these benefits can be achieved through stories may be in terms of the way people learn. Stories are powerful because they are based on cognitive learning mechanisms:

- The availability heuristic: stories make events more top-of-mind
- Elaboration: the use words and images to create vivid means of remembering
- Episodic memory: based on direct experience (Swap *et al.*, 2001).

The availability heuristic holds that “when an event is made more available from memory, there is a strong tendency to believe that it is more likely to occur or to be true.... if aspects of corporate culture or systems are made more vivid, such as through a story, the availability heuristic predicts they will become more memorable, more thoroughly processed, and judged to be more true than those supported only by probabilities or abstract data,” (Swap *et al.*, 2001:106). Elaboration is the extent that people reflect upon and integrate information with what they already know, so that they will remember it better, whilst episodic memory allows the listener to process the story into logical, easily remembered elements.

Source	Benefits from the use of stories and storytelling
Wilkins (1984)	<ul style="list-style-type: none"> • Tend to stick in mind longer than abstract ideas alone • Information is more quickly and accurately remembered when it is first presented in the form of a story
Armstrong ¹¹ (1992)	<ul style="list-style-type: none"> • Simple to communicate a message • Message is memorable • It is fun to work with stories
Hansen and Kahnweiler (1993)	<ul style="list-style-type: none"> • A powerful means of generating commitment • Stories enjoy widespread acceptance as a means of communication
Boyce (1996)	<ul style="list-style-type: none"> • Expressing the organisational experience of members or clients more clearly • Confirming the shared experiences of and shared meaning of members and groups within the organisation • Orienting and socialising new members more effectively • Co-creating vision and strategy more easily
Kaye and Jacobson (1999)	<ul style="list-style-type: none"> • Stories can be a highly effective instructional practice as they enable people to understand things in meaningful and relevant ways • Stories encourage a broader understanding
Snowden (1999a)	<ul style="list-style-type: none"> • Stories offer a highly effective way to capture tacit knowledge
Denning (2000)	<ul style="list-style-type: none"> • Ability to communicate quickly, naturally, clearly, truthfully, collaboratively, persuasively, accurately, intuitively, entertainingly, movingly, feelingly, interactively through the use of stories more than by other means
Snowden (2000a)	<ul style="list-style-type: none"> • A highly effective means of mapping knowledge within the organisation • Embedding sustainable lessons learned
Snowden (2000b)	<ul style="list-style-type: none"> • Stories are more effective in sharing knowledge in diverse populations
Denning (2001, 2004b, 2004c) and LaPorte (undated)	<ul style="list-style-type: none"> • Improved buy-in from stakeholders at the World Bank compared to other communications methods
Gill (2001)	<ul style="list-style-type: none"> • Improved speed of communication¹²

¹¹ As identified in section 3.2.2, almost all the stories described and used by Armstrong are in written form, in contrast to other authors' clearly stated preference for the oral delivery of stories (Denning, 2000; Snowden, 2000c).

¹² Gill (2001) quoted the example of a story created by IBM Global Services for a UK retail customer where a dropped grocery bag incident was turned into a story and was deliberately shared at a

	<ul style="list-style-type: none"> • Ability to capture tacit knowledge more easily
Swap <i>et al.</i> (2001)	<ul style="list-style-type: none"> • Powerful conveyors of meaning and tacit knowledge
Sole and Wilson (2002)	<ul style="list-style-type: none"> • A very powerful way to represent and convey complex, multi-dimensional ideas • Can convey both information and emotion, both the explicit and the tacit, both the core and the context
BSI (2003a)	<ul style="list-style-type: none"> • A very powerful tool • A natural solution to complex communications • Most sustainable form of communication
Scholtz (2003)	<ul style="list-style-type: none"> • Stories offer a simple tool through which to share complex meaning quickly, in a way that is accessible, and empower people
James and Minnis (2004)	<ul style="list-style-type: none"> • Stories can inspire and motivate organizational members • Stories engage both reason and emotion
Parkin (2004)	<ul style="list-style-type: none"> • The transition of the organisation can happen more quickly, at less cost, with a greater degree of success

Table 3.4 Benefits of the use of stories and storytelling¹³

Several practical examples can be found in the literature of the benefits to be achieved by using stories and storytelling. Buckler and Zien (1996) looked specifically at innovative companies in the mid-1990s in the USA (including 3M and Apple), Japan (including Sony and Toshiba) and in Europe (Club Med and Océ amongst others), where they found extensive benefits in the use of stories to reinforce the innovative culture in these businesses. Stewart (1998:165) discussed the use of storytelling in a number of cases, including at Fortune Magazine; at Eskom (South Africa's public electricity utility) with a Zulu imbizo (gathering); at Xerox with copier repair men¹⁴ (the Eureka success-story database was credited with \$100 million in savings); at IBM for winning global accounts through making tacit knowledge explicit and then sharing

watercooler. Two days later the story had reached at 600 'story listening posts' around the organisation, in six countries and three languages.

¹³ This table is presented in chronological order.

¹⁴ Brown and Duguid (2000a:77) also told the story of the Xerox copier repairmen. "The constant storytelling about problems and solutions, about disasters and triumphs over breakfast, lunch and coffee serves a number of overlapping purposes" but most significantly, knowledge sharing.

that knowledge through stories. A more recent illustration of the use of stories can be found in Brown *et al.* (2005). One of the authors explained that:

“We would have four or five bullet points that we were hoping that people would learn. We were spending our time focusing on the precise wording of those bullet points. What we discovered almost by accident was that the wording hardly mattered. The only points people remembered one or two weeks later were the points that had been embodied in a story. So we told a great story, then people remembered the points. Otherwise not. We found that when people would come to a meeting a couple of weeks later, they had completely forgotten the bullet points, but they could repeat the story back to us almost verbatim. Following the story, they knew what they were supposed to have learned. That was a powerful discovery,” (Brown *et al.*, 2005:148).

In summary, there are many benefits, which have been identified, supporting the use of stories and storytelling as practices for use by individuals, teams, and the whole organisation. By using stories, the key benefits brought to knowledge sharing are that it can become much more memorable, meaningful, easier, longer lasting and of greater value. This provides a further basis on which to analyse the empirical research findings.

3.3.3 Pitfalls in the use of stories and storytelling

Some authors (Denning, 2000; Ready, 2002; Reamy, 2002; Snowden, 2000b; Sole and Wilson, 2002; Swap *et al.*, 2001) have expressed a note of caution about the use of stories and storytelling as a universal cure for all knowledge management ills: judgement must be exercised as to where and when stories are used.

Denning (2000), for example, despite his overwhelming enthusiasm for stories and storytelling, suggested not to use a story:

- Where the audience does not want one
- Where analysis would be better
- Where the story is not ready
- Where a story would be deceptive.

Stories do not lend themselves equally well to transferring different kinds of knowledge. For example, indiscriminate use of stories to transfer critical skills, managerial systems and norms and values would be misguided. “Critical skills, including deep knowledge of a content domain, would be very difficult to transfer via stories. For such concrete forms of knowledge, people rely on formal education, apprenticeships or mentoring, training programmes and self-study for mastery the use of stories to communicate managerial systems does occur,” (Swap *et al.*, 2001:103).

Another warning came from Ready (2002:69) in that storytelling should by no means be viewed as a panacea. “It can help build an important part of an organisation’s capabilities, but only in conjunction with other tools and the hard work required to use them well.”

There may be traps in using stories: seductiveness (getting too deep into the story to see the meaning); stories told from a single point of view (they may lose relevance to the listener) and static-ness (stories need regular revision to update and keep relevant). In addition, stories are not appropriate, for example, in specific skill-building or emergency situations (Sole and Wilson, 2002).

Reamy (2002) also saw a problem with the use of stories, as the knowledge embedded in stories is difficult to codify in such a way as to capture the richness and multiplicity of stories without losing the immediacy and power of the storytelling experience. He advocated the creation of a rich and powerful knowledge architecture to overcome this problem (although he failed to explain exactly what that architecture would look like)¹⁵.

In summary, although the use of both stories and storytelling represent potentially powerful practices in the knowledge management arsenal, a balanced approach appears to be advocated by a number of authors in terms of proactively selecting where stories and storytelling represent the most appropriate practices to use for sharing knowledge (as well as for other purposes).

¹⁵ Reamy (2002) questioned what kind of stories will be told. Will the stories told have a positive or negative effect; will they dwell on the past or deal with what organisations need to know today?

This chapter has thus far discussed the nature of stories and storytelling; the possible uses, benefits and pitfalls in their use to share knowledge. To be able to make effective use of stories and storytelling it would be useful to have a model or framework for the use of stories and this is discussed in the next section.

3.4 Models for the use of stories and storytelling

3.4.1 Review of models

Five models of how to use stories and storytelling as part of a knowledge management strategy were identified during the literature search and are presented in Table 3.5.

Source	Model elements
Welles (1996)	<ul style="list-style-type: none"> • The starting point (the story itself) • The point of view (space for the listener) • The storyteller (crazed but not crazy) • The mission (a heroic narrative)
Roth and Kleiner (1997)	<ul style="list-style-type: none"> • The Learning History, a 20 page to 100 page two-column document
Snowden (1999a)	<ul style="list-style-type: none"> • Elicit anecdotes • Compare to existing values and rules • Decompose the anecdotes • Store elements • Compare to desired values and rules • Construct story
Reamy (2002)	<ul style="list-style-type: none"> • Storytelling skills • Story understanding skills • Story creation skills • Story capture skills
Sole (2002)	<ul style="list-style-type: none"> • Story-crafting: the story itself, including the design of the story, level of complexity, relevance • Story-telling: who tells the story, whether it is oral or captured, use of media • Story-listening: monitor the reception, use the feedback for design and content of future stories

Table 3.5 Models for storytelling¹⁶

¹⁶ This table is presented in chronological order.

In the first model, Welles (1996) identified the story content, the listener, the storyteller and the way in which the story is told ('heroic narrative'), with an emphasis on oral storytelling. This is similar to the model of Reamy (2002), although Reamy laid an emphasis on story capture for reuse which is absent from Welles. Welles's model is also similar to that of Sole (2002) but Sole has only three elements, making the role of the storyteller and the telling of the story a single element of the model. In contrast, Snowden's (1999a) model offers little guidance in terms of the storyteller or the audience with the emphasis rather on the construction of the story. One point of commonality between these four of the five models is that they are oriented towards oral storytelling.

The Roth and Kleiner (1997) learning history model is significantly different from all of the other four models, being a written narrative (without an oral component) of a company's set of critical episodes, captured on paper in two columns: the right-hand column carries events described by those who took part in them, the left-hand column carries analysis and commentary by *learning historians*. Once completed, the learning history is used as a basis for group discussion by those involved in the story and those who can learn from it: it is a *jointly-told tale* based on community storytelling.

For the purposes of this research a single model for the analysis of the use of stories and storytelling in the case study organisation should be selected. Of those models identified during the literature search and presented in Table 3.5, the Sole (2002) model is selected for use in analysis in Chapter 7¹⁷. The reasons for this selection are:

- Completeness of the model: it includes the key elements of the story, the teller and the audience (Snowden's model specifically falls short in this respect)
- Flexibility of the model: it is not prescriptive in terms of the format (practices and tools) that must be used (Roth and Kleiner is too restrictive for this purpose).

¹⁷ Within which the views of other sources from the literature can be accommodated or positioned.

The next three sub-sections will explore the Sole (2002) model in more detail, integrating the work of other authors as appropriate.

3.4.2 Story-crafting

This element of the model requires a story topic to be selected and the story to be crafted (constructed). The theme, or story subject matter, would usually be dependent upon the specific objectives being set for the use of the story. For example, a typical story may articulate the realisation that all an organisation's problems are not being solved with current technical and managerial approaches and a vision of the future may be proposed in the story or the story may promote the achievement of continuous innovation (SAI, 2001). The choice of theme may include one or more of the uses and benefits identified in Tables 3.3 and 3.4.

The story structure may be built taking into account the possibilities identified in Table 3.1 and 3.2, such as through the use of the model advocated by Snowden¹⁸ (1999a) or with the assistance of internal or external facilitators (Kaye and Jacobson, 1999; SAI, 2001)¹⁹. Important at this stage in terms of the selection of the topic and construction of the story is consideration of the relevance of the story to the potential audience and the level of complexity of the story content (Sole, 2002).

The real maximum potential of the use of stories is more likely to be achieved when the story itself is in some way captured for reuse²⁰. To help to make stories reusable, stories can be captured (through the creation of a library of stories), indexed, analysed and retrieved and where that activity is done well, it is possible to enhance the power of storytelling (Reamy, 2002). To enact the capture of stories organisations should:

- Create a central group to administer, metatag and facilitate story capture
- Create a reward system for submitting stories, monetary and otherwise

¹⁸ As discussed in section 3.4.1: the steps from elicit anecdotes to construct the story.

¹⁹ Armstrong (1992) and Denning (2000) provided useful checklists as to how to go about writing stories, such as the use of external facilitators.

²⁰ Weil (1998) (in the case of Hewlett-Packard) Snowden (1999b) (in the case of IBM) and Eisenhart (2001) (in the case of the US government) give examples of projects where stories were systematically captured for reuse.

- Use various media: voice, text, video, and multimedia
- Create a referencing or indexing system (Reamy, 2002).

Having successfully selected the specific theme of the story (in support of knowledge sharing) and then constructed the story, the next step in the Sole (2002) model is to focus on the selection of the storyteller, the medium to be used and the actual telling of the story itself.

3.4.3 Story-telling

The key issues at this step in the model are to determine who tells the story (one or more individuals), how the story gets told (the choice of the media) and when the story gets told (BSI, 2003a; Sole, 2002).

The selection of a suitable storyteller (and number thereof) needs a good understanding of audience considerations. There are two main considerations. Firstly, at times the size of the audience may rise dramatically (such as with the use of industrial theatre to carry a particular story, where actors play out the roles of the characters portrayed in the plot). Secondly, at other times the storyteller may be on his or her own but face a potentially smaller or larger group of listeners (either small teams in an informal environment, or with bigger groups such as at a large venue used for a corporate gathering), and their skills must be appropriate to the setting (Kaye and Jacobson, 1999).

“There are many skills that contribute to the telling of a great story. Everyone has had the experience of listening to a story that is boring or confusing. Even if the message or intended outcome is clear, the story can still fall flat in the telling,” (BSI, 2003a:178). The key to the art of storytelling is the capacity to trigger dramatic and memorable pictures in the minds of the listeners (BSI, 2003a:61). It may not be necessary to employ the services of a professional storyteller, although in certain circumstances this may prove an attractive option (BSI 2003a; SAI, 2001).

What a good storyteller needs to do is to set the stage (define the current situation in a coherent manner), introduce the dramatic conflict (what is the main challenge

involved), and reach resolution in a satisfying and convincing manner (Hattersley, 1997; Shaw *et al.*, 1998). Storytelling requires planning and support and it may be necessary or worthwhile to consider storyteller coaching or training (Boje, 1991).

The choice of storytelling method may include a number of quite different alternatives; for example, using the traditional oral method; using a written presentation of the story; acting the story out in a dramatic way; using various supporting media; or through the use of a combination of some or all of these methods. A number of authors have identified the potential to enhance the value of storytelling through the use of images and objects as props to prompt sharing of experiences and trigger memories. These can include the use of various images with presentations or the use of social spaces, notice-boards, brochures, diagrams or objects (artefacts), which represent or illustrate the underlying knowledge or idea (Brown *et al.*, 2005; BSI, 2003a; Jensen, 1999; Sole, 2002; Sole and Wilson, 2002)²¹. One of these possible supporting media tools is a storyboard. The storyboarding²² tool can prove useful in involving everybody in creating the story (Collison and Parcell, 2001²³). A similar view is held by Brown *et al.* (2005) who advocated the creation of a storyboard which they said works just as it does in the production of movies. People come together around a storyboard, and start to visualise what the ideas could mean for them in their separate contexts.

Finally, consideration must also be given as to when the story will be told. Storytelling opportunities can happen in three ways: spontaneous (casual, opportunistic), existing (regular, ongoing occurrences during which stories can be told), and deliberate (planned opportunities for storytelling) (Kaye and Jacobson, 1999). Organisations need to recognise these opportunities and plan the telling of stories for knowledge sharing using a combination of all three.

²¹ Some researchers have begun to investigate how to use technology to leverage widely distributed storytelling (Dorner, Grimm and Abawi, 2002).

²² According to Merriam-Webster's collegiate dictionary (2002) the term storyboard first appeared in 1942 and is defined as "a panel or series of panels on which a set of sketches is arranged depicting consecutively the important changes of scene and action," (as for a film, television show, or commercial). The example is given of the film director Alfred Hitchcock who planned the script thoroughly and designed pictorial outlines, or storyboards, depicting specific scenes or shots before shooting any film.

²³ It is interesting to note that in their book Collison and Parcell use a brief story in each chapter to illustrate their ideas.

The next section looks at the listener as the third element of the Sole (2002) storytelling model.

3.4.4 Story-listening

In this element of the model the important issues concern the reception of the story by the audience and feedback to the storyteller (Kaye and Jacobson, 1999; Sole, 2002).

The listener(s) or audience may be defined as real (in the same physical and temporal space) or virtual (displaced by time and/or space); may be single or multiple (a group of listeners) and may enjoy receiving the story via a variety of single (for example, oral) or multimedia (for example, using oral and visual) means. Careful consideration must be given to the cultural diversity of the audience in situations where not everyone comes from the same social or cultural group. It may even be that not everyone in the audience speaks the same language as the stories being discussed. The audience must be able to identify with the story, as those stories are then particularly powerful for transferring knowledge rich in tacit dimensions (Denning (2000, 2001, 2002, 2004a, 2004b; Swap *et al.*, 2001). Care should also be taken to ensure that the appropriate opportunities are created and presented to the story listeners such that the effectiveness of their listening activities can be improved. For example, if the listener is given little opportunity to prepare for the listening experience and faces a number of distractions then the whole story-listening experience is likely to be less than entirely effective (Kaye and Jacobson, 1999).

Storytelling is certainly a collaborative activity, in the sense that at least two parties must be involved (the teller and the listener). Building on the idea of the listener's role being key to the collaborative aspect of storytelling, Denning (2001:50) noted that, "one is never entirely sure what the audience's reaction to a story will be because so much depends on what the listeners themselves bring to it." It is critical to understand the nature of the audience in terms of the ability to understand and interpret the story, to identify with the characters portrayed, to in a sense find the story credible. The reaction of the audience is key. Not only will this help the teller to gauge the reception

of the story, but also it will help in the retelling of the story on a future occasion, as well as guiding changes to the construction of the current and other future stories (Sole, 2002).

How this reaction is measured and feedback is obtained is little discussed in the literature, but might include some of the more recognised practices such as individual and group discussion (largely informal in nature), or by written feedback (using either printed or electronic data gathering practices). This feedback activity emphasises the essentially collaborative nature of storytelling: without the feedback mechanism in place there will be little hard proof that knowledge sharing has taken place.

That completes a review of the three elements of the Sole (2002) model, which as discussed in these sections (3.4.2 to 3.4.4) can be used as an analytical tool for the empirical findings later in this document. The next section explores findings from the literature on implementing the use of stories as part of a knowledge management strategy.

3.5 Implementing the use of stories and storytelling

The implementation issues associated with the use of stories and storytelling in organisations, in support of a knowledge management strategy, has received some attention in the literature over the past several years (see Table 3.6 for the relevant references). Taking these issues into account, a list was compiled of the main elements of an effective implementation of the use of stories and storytelling for knowledge sharing, based on the results of the literature review covered so far in this chapter. These elements were used for the empirical study and are introduced here as a summary of the key elements of a successful implementation:

Implementation issue	Sources identified
Ownership: the day-to-day ownership responsibility for the use of stories and storytelling	APQC, 2000; BSI, 2003a; Davenport <i>et al.</i> , 2002; de Jager, 1999; Earl and Scott, 1999; Ehms and Langen, 2002; O'Dell and Grayson, 1998; Reamy, 2002; TFPL 1999.
Executive sponsorship: the executive sponsorship for use on	APQC, 2000; BSI, 2003a; de Jager, 1999; O'Dell and Grayson, 1998; Reamy, 2002;

stories and storytelling	Skyrme, 2000; TFPL, 1999.
Objectives: the reasons and motivation behind the use of stories and storytelling	APQC, 2000; BSI, 2003a; de Jager, 1999; Denning, 2000, 2001, 2002, 2004a, 2004b; Liebowitz and Chen, 2004; O'Dell and Grayson, 1998; Snowden, 1999a, 2000b, 2000c; TFPL 1999.
Funding: the level of financial commitment to the use of stories and storytelling	APQC, 2000; BSI, 2003a; Ehms and Langen, 2002; Liebowitz and Chen, 2004; Reamy, 2002.
Tools and techniques: what methods are used to develop and deliver the stories	APQC, 2000; BSI, 2003a; Davenport and Prusak, 1999; Davenport <i>et al.</i> , 1996; Ehms and Langen, 2002; Elliott and O'Dell, 1999; Liebowitz and Chen, 2004; Nonaka, 1994; Reamy, 2002; Von Krogh, Ichijo and Nonaka, 2000.
Training and Education: what is offered to support those involved, whether they are the story developers, storytellers or listeners	APQC, 2000; Boje, 1991; BSI, 2003a; Davenport and Prusak, 1999; Ehms and Langen, 2002; Hansen and Kahnweiler, 1993; Kaye and Jacobson, 1999; Liebowitz and Chen, 2004; Ready, 2002; Skyrme, 2000.
Measures: what measures are used for the effectiveness of stories and storytelling	APQC, 1997, 2000; BSI, 2003a; Davenport <i>et al.</i> , 1996; de Jager, 1999; Demarest, 1997; Ehms and Langen, 2002; Elliott and O'Dell, 1999; Gold <i>et al.</i> , 2001; Hiebeler, 1996; Liebowitz and Chen, 2004; Manville and Foote, 1996; O'Dell and Grayson, 1998, 2004; Ruggles, 1998; Skyrme, 2000.
Success stories: what success stories exist for the use of storytelling	BSI, 2003a; Davenport, De Long and Beers, 1998; Elliott and O'Dell, 1999; Gill, 2001; Reamy, 2002.
Benchmarking: to what extent any internal or external benchmarking of these stories is taking place	APQC, 2000; BSI, 2003a; de Jager, 1999; O'Dell and Grayson, 1998.
Reward and recognition: what rewards and incentives there are for participating in the use of stories and storytelling	Davenport and Prusak, 1998; Hansen and Kahnweiler, 1993; Liebowitz and Chen, 2004; O'Dell and Grayson, 1998; Ruggles, 1998.
Storytelling model: to what extent a formal model is used in the construction and delivery of stories	BSI, 2003a; Reamy, 2002; Roth and Kleiner, 1997; Snowden, 1999a, 2000b, 2000c; Sole and Wilson, 2002; Sole, 2002; Welles, 1996.
Capture and reuse: to what extent stories are captured and made available for reuse	Denning, 2000, 2001, 2002, 2004a, 2004b; Reamy, 2002; Snowden, 1999a, 2000b, 2000c.
Catalogue: to what extent these stories are indexed for easy retrieval	Reamy, 2002; Snowden, 1999a.

Internal and external use: to what extent these stories are used both inside and outside the immediate community	McLellan, 2002; Sveiby, 2001.
Technology: what role technology plays in supporting the use of stories and storytelling	APQC, 2000; BSI, 2003a; Davenport and Prusak, 1999; Davenport <i>et al.</i> , 1996; de Jager, 1999; Demarest, 1997; Dorner <i>et al.</i> , 2002; Ehms and Langen, 2002; Elliott and O'Dell, 1999; Gill, 2001; Hansen and Kahnweiler, 1993; Reamy, 2002; Ruggles 1998; Skyrme, 2000; Von Krogh, <i>et al.</i> , 2000.
Where not to use stories: whether there is a clear understanding of where it is inappropriate to use stories	Denning, 2000; Ready, 2002; Reamy, 2002; Snowden, 2000b; Sole and Wilson, 2002; Swap <i>et al.</i> , 2001.
Storytelling Community of Practice: to what extent a story community exists in the organisation	BSI, 2003a; Collison and Parcell, 2001. SAI, 2001; van den Berg and Snyman, 2003; Wenger, 2000.
Story value rating scale: the value associated with stories relative to each other or on an absolute scale of values	No literature sources were identified but considered an important issue for this research by the researcher

Table 3.6 Stories and storytelling implementation issues

Table 3.6 not only presents a synthesis of the eighteen most significant issues identified for successful implementation, but also highlights the extent of the coverage by the authors identified. For some issues there were many sources identified, whilst for others there were few (or none, as in the case of the story value rating scale). Some authors commented widely on the range of issues necessary for a successful implementation, whilst others identified only a few of the issues. Certainly, during the literature search, there was nowhere found a single, comprehensive and integrated approach to the implementation of storytelling such as is presented in Table 3.6.

The value of the compilation of this table and its possible use as an assessment and analytical tool is two-fold. First, the compilation of the table led to the development of the research instrument that was used in assessing the maturity of the storytelling activities in the case study organisation. Second, the table can be used as an analytical

tool for use with the data gathered in the actual situation in the case study organisation.

In summary, based on the sources consulted, analysed and synthesised here, this combination of the use of experience from previous story and storytelling initiatives, combined with the expertise of a project team capable of effective implementation, and a process management approach to the ongoing use of stories and storytelling, should increase the success of the use of knowledge sharing, as a practice for effective knowledge sharing, as part of a knowledge management strategy.

3.6 Summary

The purpose of this chapter was to review the nature of stories and storytelling, with specific reference to their use as knowledge sharing practices as part of an organisation's knowledge management strategy.

This chapter opened with a discussion about the origins and definition of stories and storytelling, and a specific definition of a story for use in the research was proposed: "a story describes a sequence of decisions, actions or events; past, present or future; real or imaginary, which involves a number of characters (named or unnamed), in an organisation where a business challenge or opportunity which must be addressed."

This was followed by the identification of the difference between a story and the telling of the story and this definition of storytelling was proposed: "the practices, tools and role players involved in communicating the contents of a story or stories to the audience however defined."

Discussion then moved on to a review of the literature on the formats in which stories can be told (presented in Table 3.1) and the possible structure of stories (presented in Table 3.2). There was then a review of the various uses to which stories might be put and the benefits that arise from such use, as well as the identification of a number of potential pitfalls or limitations in the use of stories. A number of models for the use of stories and storytelling were then identified and a specific model (Sole, 2002) was selected for use as an analytical tool in this research and was explored in more detail,

encompassing related ideas from other authors on the execution of the main elements of the model.

The chapter concluded with the synthesis based on the literature review of the elements of a successful implementation of stories and storytelling as part of a knowledge management strategy. These elements provided an element of the input to the empirical research into the use of storytelling in the case study organisation (part of the basis for the research instrument) and the use of the elements of implementation as an analytical tool.

In summary, this chapter has clearly demonstrated that stories and storytelling:

- Have been in use for thousands of years as a means of communication
- Have been recognised for at least the past thirty years as a powerful means of communication in organisations
- Have been recognised since the early days of the knowledge management movement as a powerful way to share knowledge in organisations
- Come in many different formats and structures
- May serve many different purposes (including related to knowledge management)
- Offer many benefits when sharing of knowledge is being implemented in organisations
- May be implemented more successfully where prior experience is taken into account.

The previous chapter provided the context for knowledge and knowledge management for this research project. This chapter has done the same for stories and storytelling. The next chapter will focus on those elements which represent possible ways of achieving and measuring world-class performance in the use of stories and storytelling as knowledge sharing practices as part of a knowledge management strategy.

4 World-class performance

4.1 Introduction

This chapter will explore the meaning of ‘world-class performance’, offer a possible definition of how the term can be applied in practice and propose a means of measuring world-class performance that can be used to assess the effectiveness of the implementation of the use of stories and storytelling as practices for knowledge sharing as part of a knowledge management strategy. Establishing world-class performance in relation to knowledge management and stories and storytelling used in a knowledge management strategy represents the third major focus area of the non-empirical research which contributes to answering the main research problem.

The reason for this focus on world-class performance is to enable the execution of the empirical research as part of the overall research problem. The identification of the nature of world-class performance will facilitate the construction of a research instrument that will use world-class performance as a way of assessing and analysing the use of stories and storytelling. In other words, it is not just the incidence of use of stories and storytelling that is of interest but rather the extent to which the case study organisation and its knowledge management strategy and practices can be said to be world-class.

This chapter has been structured in such a way as to review a number of key concepts associated with the measurement and enhancement of organisational performance. There are six main sections to the chapter. In each of those sections, elements of a framework of world-class performance will be explored, including benchmarking, best practices, quality, standards and maturity models, starting with a discussion of world-class performance itself. These topics are represented in Figure 4.1.

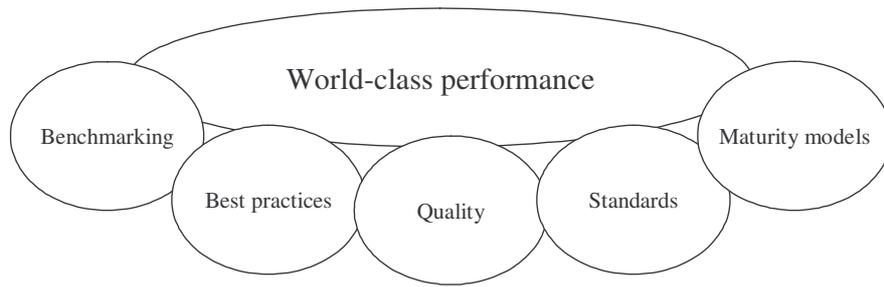


Figure 4.1 World-class performance framework

The framework presented in Figure 4.1 is intended as a convenient way to draw together the various concepts associated with world-class performance. It is suggested that organisations aiming to achieve world-class performance should take into account the various elements of the framework and proactively decide not only which of the elements is applicable to their circumstances, but also the extent to which those elements represent an appropriate component of their overall world-class performance.

4.2 World-class performance

As organisations of all types and sizes become ever more part of the global village, there is increasing pressure to match up to international competition and levels of performance. The last fifty years has seen an evolution from relatively closed economies and societies to a situation today, at the dawn of the 21st century, where ‘thinking global and acting local’ seems to be, for many, a new mantra for today and increasingly the future. In a sense one could argue that the globalisation movement which has gathered such pace in the past fifty or so years has given rise to the emergence of world-wide comparisons of performance, as opposed to the former, more localised, often more inwardly-focused, national basis of comparison.

In many fields, such as those measuring achievements in sport, the arts and entertainment, industry and commerce, the measure of good or best performance is now often described as ‘world-class’: world-class athletes take gold in the various competitions organised between the top competitors in a particular sporting code; competitors in disciplines such as cricket, rugby and soccer go head-to-head every four years for the honour of being acclaimed ‘World Champions’; each year sees the Academy of Motion Picture Arts and Sciences in the United States recognise world-class performance in the film industry.

4.2.1 What is world-class performance?

What is the business equivalent of world-class performance? There are certainly many different rankings produced of the highest performers as measured by a number of criteria (such as the Fortune Global 500), as well as the competitiveness report issued annually by the World Economic Forum, where competitiveness of nations (rather than enterprises) is the basis for comparison. This prompts the question: ‘What does it take to be world-class?’ If an organisation implements all the best practices it can lay its hand on, conforms to all the known standards in its field of operations and wins one or more performance or achievement awards, do these factors automatically render the organisation world-class? What happens if an organisation carries out benchmarking for selected elements of the business processes in which it is engaged, determines that its performance equals or exceeds those against whom the benchmarking exercise is performed? Can the organisation sit back, basking in the achievement of being world-class?

One of the obvious places to start in the discussion of world-class performance is to look at some dictionary definitions. The Collins English Dictionary (2000), for example, lists the term ‘world-class’ as, “an adjective, denoting someone with a skill or attribute that puts him or her in the highest class in the world example: a world-class swimmer.” The Merriam-Webster’s Collegiate Dictionary (2002) also lists world-class as an adjective, giving the date of first listing as 1950, and defining world-class as “being of the highest calibre in the world (e.g. a world-class polo player).”

Although the term world-class is frequently used in a wide variety of fields, from sporting achievements to business performance comparisons, there is surprisingly little that has been written about the specifics of a definition of the term world-class as applied in a knowledge management strategy. A simple perspective might be to assume that any activity, process or aspect of an organisation's performance can be deemed (or claimed) to be world-class. This then prompts a number of questions that need to be answered:

- What are the criteria that will be used to measure world-class performance?
- Is world-class a state achievement at a point in time, or a journey of performance through time?
- If an organisation is to be world-class, to what element of its activities can or should the term be applied?
- How can the best-in-class performance be measured and by whom?

There are many established and widely used standards and models such as the International Organization for Standardization (usually known by its initials ISO), Investors In People and the European Foundation for Quality Management, although none of these ultimately define world-class performance (Faulkner, 2000). In an attempt to address the issue of a better definition, the world-class-service model 'Promoting Business Excellence' (PROBE) was launched in 1999, developed jointly by the London Business School and the UK-based Confederation of British Industry. PROBE enables organisations to, "quantify their competitive positioning, from 'could do better' to 'world-class' and their relative scores for practice and performance," (Faulkner, 2000:52). The International Service Study, which gave rise to PROBE, was conducted in 1997 and looked at 150 companies in the United Kingdom (UK) and a further 150 in the United States of America (USA), all of which were then compared using the model.

Voss *et al.* (1997), the authors of the PROBE model, looked at the issue of achieving world-class service in the context of global competitiveness. The objective of the study was to compare service practice and performance in the UK organisations

surveyed against a similar sample in the USA. The USA was chosen because, “its services are typically viewed as world leaders,” (Voss *et al.*, 1997:2). Using a model of service management the study gave rise to a benchmark comparing over 300 USA and UK organisations in the service business. The key findings of the survey included the positioning of organisations on a two-by-two matrix, relating service practice and service performance as illustrated in Figure 4.2.

Overall Performance	High	 Vulnerable	 Contenders	<div style="border: 2px solid black; padding: 5px;">  World-class </div>
	Low	Could do better 	Promising 	
		Low	Overall practice	High

Figure 4.2 Service performance and practice matrix
 (Source: Voss *et al.*, 1997)

In their study Voss *et al.* (1997:6) defined world-class organisations as, “those which had both leading management practices and performance equal to the world’s best.” To be classified as ‘world-class’, organisations needed to achieve a score of 80% or better in both aggregate practice and performance¹. The study found the 13.2% of USA-based companies and only 5.3% of UK-based companies met these criteria.

The study also examined the extent to which firms in the USA either used or were preparing to use the Malcolm Baldrige National Quality Award (27.1%) or the International Organization for Standardization ISO 9000 assessment (13.4%). The authors found that there was a strong match between their survey findings of company

¹ In Figure 4.2 only Firm E meets the criteria of being world-class.

performance and that of the assessment as measured by the Baldrige criteria. The results achieved by Voss *et al.* (1997) gave rise to a series of offerings from the Confederation of British Industry (CBI) under the PROBE brand in the areas of service, manufacturing, human resources and environment (CBI, undated).

From a different perspective, Schonberger (cited in Waldron, 1999), suggested that the term “world-class manufacturing” came into popular use in the 1980s at a time when Japanese manufacturing was seen to be in the ascendancy. “World-class manufacturing has an overriding goal and an underlying mindset for achieving it. The overriding goal may be summarised by the motto of the Olympic Games: *citius, altius, fortius*... the world-class manufacturing equivalent is continual and rapid improvement,” (Waldron, 1999:8).

Waldron (1999:5) claimed that, “there is a growing list of more narrowly defined strategic initiatives that are commonly used to identify world-class manufacturers.” These, he said, are frequently referred to as ‘best practices’, but warned that their potency is “highly situational and implementation appears to be as important as the practice.” He also said, “identifying companies that truly deserve to be called world-class in manufacturing remains a daunting and imprecise task,” (Waldron 1999:16).

Waldron (1999:6) also offered examples of specific best practices in manufacturing, such as quality circles, the kanban system and total quality control, as examples of achieving world-class performance. In the same vein, Drucker, (cited in Waldron, 1999), quoted the example of the use made by Roger Smith of General Motors (GM) in the comparison of GM’s manufacturing with the best the Japanese had to offer. Compare this to the London-based CBI which defines world-class as “competing successfully with the best in the world, through performance sustained by superior practices in every area of the business,” (CBI, undated: online).

So, in summary, there have been studies on both sides of the Atlantic throughout the 1990s that used benchmarking as a key tool in helping organisations to measure the extent to which they were achieving world-class performance. These measures in both cases were based on the best practices found in organisations studied.

4.2.2 World-class performance and knowledge management

The field of knowledge management as it is known today is still relatively immature, given that its growth largely took place in the 1990s. It is remarkable, in a sense therefore, that in 2003, Teleos, in conjunction with the KNOW Network, announced the sixth in a series of annual awards for achievement in knowledge management on a global basis (Chase, 2003). These awards have been presented on the basis of achievement in North America, Europe and Japan as well as on a global basis, and seek to recognize outstanding achievements by Most Admired Knowledge Enterprises (MAKE). The criteria for the awards are:

- Creating a corporate knowledge-driven culture
- Developing knowledge workers through senior management leadership
- Delivering knowledge-based products/solutions
- Maximising enterprise intellectual capital
- Creating an environment for collaborative knowledge sharing
- Creating a learning organisation
- Delivering value based on customer knowledge
- Transforming enterprise knowledge into shareholder value (Chase, 2003).

These MAKE awards may be the closest there is currently available to measuring world-class performance in the knowledge management field. However, the drawback of using this awards process as a broader guide for organisations trying to become world-class is that there are relatively few companies that are nominated as finalists (in the 2003 awards, only 49 organisations on a global basis), and the awards process only measures against the criteria listed above and does not provide any form of diagnosis, action plan or road-map for improved performance in the future.

If the field of knowledge management is relatively immature compared to other branches of the study of management and organisation performance, then this is even more so the case with the use of stories and storytelling for knowledge sharing. As has been shown in the discussion around the use of stories and storytelling in Chapter 3,

there are only now emerging models for the use of stories and storytelling in support of knowledge sharing. There were no sources found in the research for this chapter to support the use of measures of world-class performance in the use of stories and storytelling for knowledge sharing.

This current study, by contrast, may offer some progress in this field, as the discussion of world-class performance focuses upon what useful elements there are available to organisations seeking to measure and improve their performance in this area.

4.2.3 World-class performance summary

While conducting the non-empirical research for this project, it became clear that although the term ‘world-class’ is in general use, there is surprisingly little in the way of a formal definition which is widely agreed and documented in literature as to what the term ‘world-class’ really represents. Hence it was decided to develop the proposed framework for world-class performance which appears in this chapter in Figure 4.1. As already explained, the proposed framework has a number of components, each of which, it is recommended, is taken into account when assessing the extent to which an organisation or part thereof can be rated as world-class in its activities and performance. Although the PROBE model proposed by Voss *et al.* (1997) was found to be useful in addressing this subject, it was felt that a more complete view was required for the purposes of this research. Hence, the framework was developed and will now be explored in its component parts over the next several sections. Once the proposed framework has been fully explored it will be possible to apply the framework in assessing and analysing the performance of the case study organisation.

The next sections will explore the various elements portrayed in the world-class performance framework presented in Figure 4.1.

4.3 Best practices

4.3.1 Background to best practices

As organisations have faced increasing levels of competition during the rise of the era of globalisation, so they have sought to identify and implement ever-improving ways to do business, the so-called search for best practices. The popularity of the business re-engineering movement of the 1990s was largely built around the idea that organisations could learn from their own endeavours as well as from each other (Senge, 1990) and establish these best practices².

How might organisations seeking to develop a best-practices based approach proceed? Gardner and Winder (1998) suggested the following:

- By identifying activities that have a positive impact on organisational performance.
- By selecting which of these to benchmark.
- By comparing performance to that of benchmarking partners.
- By adapting, revising and implementing practices to develop best practices.
- By incorporating best practices into organisational management systems.

In terms of what best practices represent, Chevron (O'Dell and Grayson, 2004) recognised four levels of best practices that could be found in best practices teams:

- Good idea -- unproven: not yet substantiated by data but makes sense intuitively.

² Definitions of best practice include the following:

“Best/good practices: practices that have produced outstanding results in other situations, inside or outside of a particular organisation and which can be validated, codified and shared with others and recommended as models to follow” (CEN, 2004: online); “Best practice: best practices, processes and techniques are those that have produced outstanding results in another situation and that could be adapted for your situation. Like all knowledge, it is contextual. A best practice is what is best for you,” (Rumizen, 2002:285).

- Good practice -- methodology, procedure, or process that has been implemented and has improved business results for an organisation. This is substantiated by data collected at the location.
- Local best practice -- a good practice that has been determined to be the best approach for large parts of an organisation based on an analysis of process performance data.
- Industry best practice -- a practice that has been determined to be the best approach for large parts of an organisation. This is based on internal and external benchmarking, including the analysis of performance data (O'Dell and Grayson, 2004:621).

It is also possible to debate whether the term 'best practices' is even the appropriate one to use. It may be that the pursuit of best practices is the ultimate goal, but the practice which works best in the particular situation may be a more appropriate objective. In addition, it is impossible to know at any one point in time what a particular *best* practice is, so that a more cautious approach might be to define such practices as *better* practices (see section 4.3.2. for more discussion on this theme).

As early as 1977 the American Productivity and Quality Centre (APQC) was founded to assist organisations in identifying and implementing best practices. Since that time there have emerged a number of initiatives from both the private and public sector which seek to identify and distribute best practices in conjunction with the APQC (O'Dell and Grayson, 1998, 1999, 2004). The real growth of interest in best practices took place during the 1990s with one of the most comprehensive case studies of best practices implementation documented by Johnson (1997). He presented the story of Texas Instruments (TI) and their adoption of TI-BEST (Texas Instruments Business Excellence STandard). In essence, Johnson (1997) saw this as a four-step improvement process:

- Define business excellence for your business
- Assess your progress
- Identify improvement opportunities
- Establish and deploy an action plan.

In 1995, under the TI-BEST banner, the company launched a Best Practice Sharing (BPS) initiative. Johnson (1997) claimed the BPS initiative brought the, “first truly global effort at TI designed to break down the barriers of autonomous businesses and to create a single, powerful worldwide company fully utilising its collective knowledge,” (Johnson, 1997:54). This included:

- A best practice definition: ‘A best practice is a practice that is best for me.’
- The best practice sharing process: built on a supply/demand model, incorporating a knowledge base of best practices, with facilitators supporting the transfer process.
- A facilitator network: to enable the process and facilitate cultural change.
- A technology infrastructure: based on Lotus Notes™.
- ShareFair: first held in 1996, a one-day event to facilitate knowledge sharing and best practices transfer (Johnson, 1997).

Johnson (1997) cited evidence of TI’s commitment to the concept of best practices: there was a team of over 200 BPS facilitators and over 500 best practices were accessible from all business processes and regions around the world, drawn from the 60,000 TI employees and their experiences. Johnson (1997:53) related that the four services offered to TI employees by the Office of Best Practice were:

- A continual supply of best practices, from a variety of internal and external sources; these are in various forms including comprehensive narratives.
- Provision of tools and techniques for capturing and sharing best practices, including forums, presentations, documents, databases, email and newsletter articles.
- Communication of the latest techniques, trends and policies.
- Training of BPS facilitators to help them become more skilled in finding and documenting best practices.

Johnson (1997:54) continued by highlighting some of the benefits of the TI-BEST and TI-BPS initiatives:

- In 1995 TI Europe received the European Foundation for Quality Management (EFQM) European Quality Award and TI Singapore received the Singapore Quality Award
- 1996 saw the delivery of “free fab” capacity, avoiding the spending of an additional estimated \$1.5 billion on a new chip fabrication plant
- TI achieved top ranking in customer satisfaction in the semiconductor industry in 1995
- TI’s Defense Systems Group was recognised with a United States Navy Best Manufacturing Practices Award for their efforts in sharing best practices.

4.3.2 Challenges of best practices

Are best practices not perhaps ‘better practices’? It can be argued that it is difficult to translate practices from one organisation to another due to uniqueness of circumstances, cultural barriers and a number of other factors.

O’Dell and Grayson (1998) quoted numerous examples of companies that have benefited from the transfer of internal best practices, such as at Texas Instruments, also highlighting some of the challenges to the transfer of best practices (including silo behaviour; a culture that promotes personal knowledge over knowledge sharing; a lack of contact and relationships; over-reliance on transmitting explicit rather than tacit knowledge; not allowing or rewarding people for taking the time to learn and share).

O’Dell and Grayson (1998) identified seven important lessons for firms about to embark on best practices transfer in terms of overcoming some of the challenges:

- Use benchmarking to create a sense of urgency or find a compelling reason to change
- Focus initial efforts on critical business issues that have high payoff and are aligned with organisational values and strategy

- Make sure every plane you allow to take off has a runway available for landing
- Don't let measurement get in the way
- Change the reward system to encourage sharing and transfer
- Use technology as a catalyst to support networks... but don't rely on it as a solution
- Leaders will need to consistently and constantly spread the message of sharing and leveraging knowledge for the greater good (O'Dell and Grayson, 1998:171).

The learning organisation is one that can analyse, reflect, learn and change based on experience (O'Dell and Grayson, 1998), but it has been discovered that best practices do not always transfer easily. The main reasons identified were (as mentioned in section 2.3.5):

- Ignorance: both on the giving and the receiving end
- Absorptive capacity: even where the practice was known about, there may be a lack of resources (time, money, people) or lack of detail to complete the transfer
- Lack of a relationship: trust and credibility being absent were significant barriers (O'Dell and Grayson, 1998:155).

Later, Szulanski and Winter (2002) presented an insight into what can go wrong with best practice replication and went on to suggest some principles to overcome the problem. They claimed that the significant big mistakes made by teams in trying to replicate best practices were:

- Placing too much trust in experts and documents
- When setting up the new process, there is the tendency for the manager to *turn into a cowboy*: he starts to tinker instead of implementing
- They overestimate what they know and their chances of success (Szulanski and Winter, 2002).

The authors specifically recommended copying the activity template as closely as possible, which they believed brings three advantages: there's a successful example to work to; there is a clear objective; there is a built-in tactical approach (Szulanski and Winter, 2002). The same authors also identified barriers to success to best practices replication (including uncooperative sources; lack of teamwork; internal competition; an overemphasis on innovation). In closing, the authors suggested that, "the poor track record of knowledge reuse...suggested that effective copying is not a trivial achievement but rather a challenging, admirable accomplishment," and that, "whole industries are trying to replicate best practices and manage organisational knowledge – but even so, the overwhelming majority of attempts to replicate excellence fail" (Szulanski and Winter, 2002:69).

In summary, there are several challenges associated with the achievement of best practices in organisations, with some clear recommendations from the authors mentioned here as to how to proceed towards successfully implementing best practices.

4.3.3 Best practices and knowledge management

Many of the authors identified through the non-empirical research for Chapter 2 can lay claim to identifying and often advocating practices which apply to effective knowledge management (BSI, 2003a³; Collison and Parcell, 2001; Davenport, 1998; Davenport and Glaser, 2002; Davenport *et al.*, 1996; Davenport *et al.*, 1998; Earl, 2001; Elliott and O'Dell, 1999; Hansen *et al.*, 1999; Liebowitz and Chen, 2004; SAI, 2001; Skyrme, 2000; Sveiby, 1997; Szulanski, 1996; Von Krogh *et al.*, 2001; Wenger, 2000). Many of these practices have already been discussed in Chapter 2 (such as knowledge maps, community of practice) although there are others which are covered in the literature yet may not have received specific mention (such as corporate Yellow Pages, physical and virtual libraries, knowledge databases, knowledge audits, the knowledge infrastructure assessments). Some of the practices identified have been

³ Of all the sources consulted certainly the most comprehensive was the BSI (2003a) "*Managing culture and knowledge: guide to good practice.*" It is interesting to note that the title of this publication specifically stated only that it was a guide to *good* and not *best* practices.

integrated into various forms of knowledge assessment tools (such as in the case of Liebowitz and Chen, 2004; Skyrme; 2000).

In addition, in Chapter 2 there were identified (in Table 2.5) a number of commonly used knowledge management processes which themselves could be deemed to be 'best practices' (such as acquiring, codifying, creating, packaging, sharing and storing knowledge). The non-empirical study conducted for Chapter 3 indicated that a number of authors have identified practices which contribute towards successful implementation of stories and storytelling used for knowledge sharing (Armstrong, 1992; Boje, 1991 Boyce, 1996; Brown *et al.*, 2005; Denning, 2000, 2001, 2002, 2004a, 2004b; Hannabuss, 2000; Ibarra and Lineback, 2005; James and Minnis, 2004; Kaye and Jacobson, 1999; McLellan, 2002; Parkin, 2004; Ready, 2002; Reamy, 2002; Shaw *et al.*, 1998; Snowden, 1999a, 1999b, 2000a, 2000b, 2000c; Sole, 2002; Sole and Wilson, 2002; Swap *et al.* 2001). Examples of such practices include: story construction methods; story circles; story workshops; industrial theatre; use of multiple story media; specific models to support the use of stories and storytelling; storyteller coaching and learning histories.

However, as was the case above in exploring the concept of world-class as it applies to knowledge management, there are few if any well established and generally recognised best practices associated with the use of stories and storytelling as knowledge sharing practices. It is difficult, if not impossible, therefore, to approach this study as one where best practices previously established elsewhere can be applied directly to the case study research to be undertaken in this work. It also makes problematic the selection and implementation of best practices (with specific reference to the use of stories and storytelling as knowledge sharing practices) as a partial solution to efforts to achieve world-class performance.

4.3.4 Best practices summary

Where they exist, best practices can be used to help organisations to identify and adopt or adapt practices which have been found to work elsewhere. In the case of this study, the non-empirical research indicates that although a large number of practices

exist both in the conduct of knowledge management and the use of stories and storytelling as practices for knowledge sharing, there is far less defined in terms of best practices compared to some other fields (such as the experience of Texas Instruments). However, as indicated in the framework presented (in Figure 4.1) the concept of best practices should be used not in isolation but in conjunction with the other elements of the proposed world-class framework to better understand and improve organisation performance. In the next section benchmarking will be explored as a further element of the framework.

4.4 Benchmarking

4.4.1 Background to benchmarking

What is benchmarking? Benchmarking has been defined as, “a systematic process of learning from the best that originated in the quality movement. It focuses on learning to improve performance. It implies humility, a willingness to acknowledge that others are better and to learn from them,” (Rumizen, 2002:285). It has also been seen as, “the process of identifying, understanding, and adapting outstanding practices from others, in order to improve your own performance,” (O’Dell and Grayson, 2004:602). Within the overall definition of benchmarking there also exists the distinction between internal benchmarking and external benchmarking, where internal benchmarking is the process of identifying, sharing, and using the knowledge and practices that exist inside the own organisation, as opposed to external benchmarking, which looks to profit from an external comparison with other organisations (O’Dell and Grayson, 2004).

Another definition of benchmarking is: “an ongoing systematic process to search for and introduce international best practices into your own organisation, conducted in such a way that all parts of your organisation understand and achieve their full potential. The search may be of products, services or business practices and processes, of competitors or those organisations recognised as leaders or specific business processes that you have chosen,” (Gardner and Winder, 1998:201). Best Practices

LLC (2003:online) discussed their definition of benchmarking, which they described as, “the process of seeking out and studying the best internal practices that produce superior performance”, while Waldron (1999) offered another view that saw benchmarking as being both quantitative and qualitative in nature (where quantitative benchmarking involves the use of metrics, whereas qualitative benchmarking seeks to compare current manufacturing practices to the practices of leading manufacturers). De Jager (1999) also identified quantitative and qualitative benchmarking but added a number of other types of benchmarking: competitive, co-operative, collaborative and internal.

Szulanski and Winter (2002) presented a useful table of the different forms of benchmarking that exist:

Parameter	Examples		
Object of benchmarking	Products	Methods	Processes
Target of benchmarking	Costs	Quality	Customer satisfaction
Reference of comparisons	Intra-departmental competition	Constituencies and clients	Same agency or sub-unit

Table 4.1 Forms of benchmarking
(Source: Szulanski and Winter, 2002)

Taking the classification offered in Table 4.1 it can be seen that benchmarking can be applied broadly as a business tool across all aspects of an organisation’s activities, suggesting that as benchmarking becomes more widespread and the basis for comparison grows, so the closer can the potential for world-class performance be said to exist. This also implies that benchmarking could be easily applied to knowledge management and to the use of stories and storytelling as knowledge sharing practices.

More than one commercial organisation has sprung up to serve the needs of those carrying out benchmarking. Examples include the International Council of Benchmarking Co-ordinators (ICOBC), which is a commercial organisation that has as its mission, “to identify ‘Best-In-Class’ business processes which, when

implemented, will lead member companies to exceptional performance as perceived by their customers,” (ICOBC, undated: online). Under the umbrella of this organisation can be found the Knowledge Management Benchmarking Association⁴.

4.4.2 Challenges of benchmarking

Carrying out benchmarking presents a number of possible challenges. These include being able to identify where best practices can be found, against which the benchmarking can take place; ensuring that there is a realistic comparison being made between the organisations involved in the benchmarking effort; gaining access to organisations willing to take part in benchmarking activities, and gaining management commitment to benchmarking (APQC, 1997; Kouzmin, Loffler, Klages and Korac-Kakabadse, 1999; O’Dell and Grayson, 1998, 2004).

To help to overcome some of the challenges of internal benchmarking, O’Dell and Grayson (1998) recommended three actions required to improve the chances of success for internal transfer and benchmarking efforts:

- Internal transfer is a people-to-people process
- Learning and transfer is an interactive, ongoing, and dynamic process
- Specific skills and capabilities are needed as a foundation.

External benchmarking challenges received the attention of Kouzmin *et al.*, (1999:123) who found that there is a strong possibility that only “relative or local optimums are found as benchmarks.” This explains the need to have a continuous process: a constant search for evolving best practices. Kouzmin *et al.* (1999) then discussed some of the challenges associated with benchmarking, including:

- The difficulty of obtaining data about competitor organisations
- The type of benchmarking measures to be used
- The completeness of benchmarking data

⁴ For a European focus see www.benchmarking.co.uk and www.benchmarking-in-europe.com .

- The degree to which benchmarking examples are not durable over time (Kouzman *et al.*, 1999).

Kouzman *et al.* (1999) further debated some of the concerns surrounding benchmarking:

- Does benchmarking stimulate innovation? It may help to spread innovation but does it stimulate original solutions?
- Which is the best benchmarking instrument to use? Does this vary according to whether the organisation is from the public or private sector?
- Benchmarking aims to make organisations *lean and mean*. What if this activity removes *organisational slack* which may be necessary to promote innovation?

In summary, benchmarking may have its use for comparisons both inside and between organisations, but may be challenging to implement for a number of reasons as highlighted here.

4.4.3 Benchmarking and knowledge management

The APQC has made a series of studies into benchmarking, with one of these studies resulting in the development of a specific tool, the Knowledge Management Assessment Tool (KMAT), jointly developed by Arthur Andersen and the APQC (APQC, 1997; de Jager, 1999; O'Dell and Grayson, 1998).

In the first year that the KMAT was launched, 1995, seventy companies had completed the assessment, which involved indicating two dimensions for each of twenty-four emerging knowledge management practices: the importance of the practice and the performance of the practice. De Jager (1999:367) reported that the use of the KMAT was intended; “to help organisations make an initial high-level assessment of how well they manage knowledge,” as well as being a benchmarking tool that could be used to help knowledge centres achieve two objectives. The first of

these was to direct attention towards areas that need more attention and the second, to identify knowledge management practices in which they excel. The KMAT had in support a database containing data from 140 companies who had used the tool. De Jager (1999:368) claimed that the benefits to the knowledge worker of benchmarking “are that management can be shown the value of the knowledge management function in numerical terms.” Benchmarking can, “help to set realistic, quantifiable goals based on superior knowledge service practices...can result in a reduction of costs, improved customer service and increased system efficiencies,” (de Jager, 1999:369).

De Jager positioned the KMAT as a collaborative and qualitative benchmarking tool, with the focus on internal benchmarking as much as anything else. The reports available from the KMAT were of three types: external reports, which compare the organisation to the overall database or customized group; internal benchmarking, which compares an individual or other unit of measure with an internal peer group, and average benchmarking, which is a combination of internal and external comparisons. The KMAT was based on the way in which the four knowledge enablers built into the model: leadership, culture, technology and measurement, could be used to, “foster the development of organizational knowledge through the knowledge management process,” (de Jager, 1999:370).

The MAKE awards (see section 4.2.2) do include some degree of benchmarking that happens through the awards process (Chase, 2003), but this is somewhat subjective in terms of the voters in the awards process, rather than being driven by the nominee organisations themselves.

Once again, and perhaps unsurprisingly, the literature search conducted for this study does not reveal any other substantial evidence of benchmarking with regard to the use of stories and storytelling. Although a number of authors featured in the previous chapter report on the use of stories in organisations (and not even all of those with specific reference to stories for the purpose of knowledge sharing) there is no single instance mentioned where benchmarking activities have specifically been undertaken with reference to stories. This suggests an area for further research.

4.4.4 Benchmarking summary

Benchmarking, as an activity, seems to be well established, even widespread, and forms an additional practice that can be used by those organisations seeking to develop and sustain world-class performance. However, as with the issue of best practices, there appears to be emerging an incomplete explanation and indication of world-class performance in the field of knowledge management and related use of stories and storytelling as knowledge sharing practices.

The combination of best practices and benchmarking alone does not complete the picture. In the next section, therefore, the role of standards will be explored as a further element in the proposed framework of overall world-class performance.

4.5 Standards

4.5.1 Background to standards

For many years there have been efforts to establish standards, at both a local and national level, for all sorts of fields. This standardisation is often seen in terms of practices and processes that have significant influence on the development and use of a wide range of both consumer and industrial products and services. These efforts have often resulted in a form of common practice (for example, such as which side of the road we travel on; the arrangement of pedals in a motor vehicle, or in which direction a tap is turned for water to flow) and although frequently these standards were established informally, where necessary and deemed desirable by the stakeholders, they have been formalised, even to the extent of legislation being passed (for such issues as health and safety).

As the world's economy continued to evolve there became greater pressure to establish international standardisation and there exist today many industry, national and international standards bodies. According to the leading international standards body (ISO, 2005) international standardisation began in 1906 when the International

Electrotechnical Commission was formed, but the ISO itself was a post-World War 2 initiative that officially began operations in February 1947. It is from this body that a definition of international standardisation can be found: “when the large majority of products or services in a particular business or industry sector conform to international standards, a state of industry-wide standardisation can be said to exist,” (ISO, 2005: online). The ISO itself, stated the case for standards, claiming they make, “an enormous contribution to most aspects of our lives – although very often, that contribution is invisible,” (ISO, 2005: online). How, then, are these standards developed? Through consensus agreements between national delegations, representing all the economic stakeholders concerned. According to the ISO (2005: online) “its members are the national standards bodies of 147 countries and it has issued over 14,000 standards... it has issued international standards for business, government and society.”

Some ISO standards are well known or easily recognised. For example, ISO 9000 has become an international reference for quality requirements in business-to-business dealings, while ISO 14000 is applicable in environmental management. The standing, therefore of the ISO is in little doubt. However, the ISO is not alone in providing an international platform for standards generation. The European Committee for Standardisation (better known by its French name, Comité Européen de Normalisation, CEN) (CEN, 2004) was founded in 1961 by the national standards bodies in the then European Economic Community and European Free Trade Association countries. The CEN now claims to, “contribute to the objectives of the European Union...with voluntary technical standards which promote trade, the safety of workers and consumers,” (CEN, 2004:online) amongst other concerns. However, the CEN only provides only a European rather than a global perspective to the whole standards movement.

Many of the major economies of the world have their own national standards bodies. Examples of these bodies are ANSI (American National Standards Institute); BSI (British Standards Institute); DIN (German National Standards); SAI (Standards Australia International); STANSA (Standards South Africa, previously known as SABS Standards, the Standards Division of the South African Bureau of Standards). The operational approach for these bodies is much the same anywhere in the world.

The national body is made up of a number of special interest groups or committees, each mandated to investigate the need for national standards in a particular field. These standards may be sourced from any one of three main points of origin:

- Standards originated from within the country
- Standards that originate within another country but for which an international standard does not exist
- An international standard that can be adopted or adapted to meet local needs.

In the research conducted for this chapter it has been established that only Australia, as a national entity, has progressed very far in the implementation of standards for knowledge management (SAI, 2003).

4.5.2 Challenges of standards

Standards may serve a useful, even vital purpose (in areas such as health and safety) where they exist. However, given the fairly lengthy process to generate and maintain standards, they tend to follow rather than lead current practice. Also, what is relevant and important to one national standards body may be less so in the case of the national standards bodies in other countries. It is not the purpose of this study to provide an in-depth evaluation of the role of standards and the possible challenges of developing and using standards per se; rather it is proposed that standards should be considered as a factor in the overall understanding of world-class performance in relation to knowledge management and stories, even if they present challenges in implementation (slow and expensive to develop). With this in mind the next section will look at standards with specific reference to knowledge management and the use of stories and storytelling as knowledge sharing practices.

4.5.3 Standards and knowledge management

To date, there has been a good deal of debate as to whether or not the field of knowledge management is in need of standards being established through the

traditional route of the national and international standards bodies⁵. This naturally prompts the question, “if not now, when?” This issue will be addressed further, in the discussion on national standards bodies and knowledge management standards.

The KMCI (undated:online) stated that, “some individuals and organisations around the world have begun work on knowledge management standards formulation. These include: the Global Knowledge Economics Council (GKEC), with ANSI accreditation in the United States, the British Standards Institution (BSI) in the UK, the Comité Européen de Normalisation (CEN) and the European Commissions' KnowledgeBoard Framework and Standards Special Interest Group on the Continent, and Standards Australia International (SAI).”

The KMCI (undated: online) also said, “each of them differs in the degree to which they advocate for standards. But to one degree or other, all have committed to the idea that valid standards for the discipline of Knowledge Management can be formulated from processes begun now, rather than at some time in the future or not at all.” This idea is challenged by the KMCI, which raises a series of issues:

- Issue One: Should standards be formulated for the discipline of Knowledge Management? Now? At some time in the future?
- Issue Two: Is the authority of ISO and ANSI, or more generally, any body external to the discipline of knowledge management itself, valid in relation to the promulgation of standards governing Knowledge Management including standards for Certification of qualifying persons?
- Issue Three: Are recent instances of corporate corruption in any way connected to Knowledge Management Certification Programs? Do they suggest that multiple, independent organisations are necessary for certification training?
- Issue Four: Do professional associations need to be accredited to offer Certification classes?

⁵ The ISO has not yet published standards in the field of knowledge management.

Skyrme (undated: online) also discussed the issue of standards for knowledge management. “The announcement by GKEC [Global Knowledge Economics Council]...of an international standards effort in knowledge management raises a fundamental question of why we need standards, plus many supplementary ones, of how should they be developed, validated and used.” Skyrme (undated: online) answered his own question, offering reasons for knowledge management standards as follows: compatibility and interchangeability; common understanding; efficiency; competitiveness; quality and safety, and enhancing levels of competence. Skyrme (undated: online) described all of these as laudable aims and gives the example of the battle for standards in the case of videotape formats (the well-known struggle between Sony Betamax and Panasonic and Philips-backed VHS format). Skyrme (undated: online) pointed out that, “the BSI was the world's first national standards body and evolved from the Engineering Standards Committee founded in 1901. Today, it has many business standards and is also involved in a recently launched pioneering e-business best practice and standards portal.” Despite this, the BSI has yet to issue any standards in the field of knowledge management. Some progress has been made, but in the nature of a best practice guide. The BSI guide, 'Knowledge Management: A Guide to Good Practice' (BSI, 2003a) addressed four issues: why organisations should care about knowledge management; how organisations should approach knowledge management; what benefits could be anticipated from investing in knowledge management, and how a deeper understanding of knowledge management could be achieved⁶.

Outside of Europe, a set of Australian interim standards for knowledge management have been published (SAI, 2003), a world first in this field. Meanwhile, in South Africa, STANSA, has initiated an SA-specific standards-forming initiative, but this remains in embryonic form. This perhaps provides further evidence of the relative immaturity of the whole knowledge management field, when compared with the standards issued by the national and international bodies in other fields.

⁶ The European KM Forum (2002:online) identified twenty issues when considering standardisation of knowledge management in Europe: Framework; Terminology; Privacy and policy; Business internetworking; Strategy; Organisation management; Issues for the standardisation process; Certification; Communities; Best practice; Processes; Domain models; Human and social issues; Training and education; Tools and technologies; Implementation methodology; Costs; Local versus global; Metrics and measurement; Restriction of standardisation.

As the use of stories can be viewed as a component of the bigger picture associated with the use of knowledge management practices in organisations, the absence of defined and published standards in the knowledge management field leads to the logical conclusion, supported by the results of this researcher, that recognised national or international standards for the use of stories and storytelling as practices for knowledge sharing do not yet exist.

4.5.4 Standards summary

Although the principle of establishing national and international standards is well established, in the case of knowledge management, standards cannot yet be used to measure the extent to which an organisation is world-class as such standards (with exception of the Australian national interim standards) do not yet exist.

Next, in the search for what it takes to be world-class, attention will be turned to the important issue of quality and the extent to which achieving and sustaining quality management can be used by organisations seeking to develop and sustain world-class performance, particularly in the field of knowledge management and with specific reference to stories and storytelling as knowledge sharing practices.

4.6 Quality management

4.6.1 Background to quality management

Can an organisation claim to be world-class without proving its ability to adhere to the principles of effective quality management? It would seem a position difficult to support, given the focus that there has been on quality as a management and business issue of the past fifty years and more. With the growth in the pressures of globalisation and international trade since the 1970s and with expectations rising in terms of product and service quality, the focus on quality as a management issue rose exponentially. The number of books, articles and conferences held on the subject

mushroomed. It seemed that an organisation without a serious commitment to quality was unlikely to survive.

The concept of quality management has been around for some considerable time. In the USA, the American Society for Quality (ASQ) was formed in 1946, with about 1000 members from seventeen existing societies (originally named the American Society for Quality Control, with a name change in 1997 to ASQ). Amongst other achievements, the ASQ spearheaded the development of the Malcolm Baldrige National Quality Award in 1987 and jointly administered the award for first three years. In Japan, Deming is the name most associated with the origins of the quality movement. Deming became interested in the use of statistical analysis to achieve better quality control in industry in the 1930s, and in 1950 he was invited to Japan by Japanese business leaders to teach that nation's executives and engineers about the new methods (Crosby, 1979). Japan's Deming Prize (established 1951), given annually to major corporations who win a rigorous quality-control competition, is named for Deming. The Total Quality Management (TQM) approach advocated by Deming and his followers saw the rise of interest in terms such as quality control, quality assurance, quality inspection, quality circles, sampling methods, root cause analysis, Pareto charts and the like. Later, Crosby followed Deming, working both in Japan and in the USA. A particular contribution of Crosby (1979) was his quality management maturity definitions which were offered as a tool to help organisations understand their strengths and weaknesses and where attention should be given in an effort to enhance organisational performance as shown in Table 4.2.

Measurement Categories	Stage I: Uncertainty	Stage II: Awakening	Stage III: Enlightenment	Stage IV: Wisdom	Stage V: Certainty
Management understanding and attitude	No comprehension of quality as a management tool. Tend to blame quality department for "quality problems"	Recognising that quality management may be of value but not willing to provide money or time to make it happen.	While going through quality improvement program learn more about quality management; becoming supportive and helpful.	Participating. Understand absolutes of quality management. Recognise their personal role in continuing emphasis.	Consider quality management an essential part of company system.
Quality organisation status	Quality is hidden in manufacturing or engineering departments. Inspection probably not part of organisation. Emphasis on	A stronger quality leader is appointed but main emphasis is still on appraisal and moving the product. Still part of manufacturing or other.	Quality Department reports to top management, all appraisal is incorporated and manager has role in management of company.	Quality manager is an officer of company; effective status reporting and preventative action. Involved with consumer	Quality manager on board of directors. Prevention is main concern. Quality is a thought leader.

	appraisal and sorting.			affairs and special assignments.	
Problem handling	Problems are fought as they occur; no resolution; inadequate definition; lots of yelling and accusations	Teams are set up to attack major problems. Long-range solutions are not solicited.	Corrective action communication established. Problems are faced openly and resolved in an orderly way.	Problems are identified early in their development. All functions are open to suggestion and improvement.	Except in the most unusual cases, problems are prevented.
Cost of quality as % of sales	Reported: unknown Actual: 20%	Reported: 3% Actual: 18%	Reported: 8% Actual: 12%	Reported: 6.5% Actual: 8%	Reported: 2.5% Actual: 2.5%
Quality improvement actions	No organised activities. No understanding of such activities.	Trying obvious "motivational" short-range efforts.	Implementation of the 14-step program with thorough understanding and establishment of each step.	Continuing the 14-step program and starting Make Certain	Quality improvement is a normal and continued activity.
Summation of company quality posture	"We don't know why we have problems with quality"	"Is it absolutely necessary to always have problems with quality?"	"Through management commitment and quality improvement we are identifying and resolving our problems"	"Defect prevention is a routine part of our operation"	"We know why we do not have problems with quality"

**Table 4.2 Crosby's Quality Management Maturity Grid
(Source: Better product design, undated)**

The purpose of comparison between the levels of the grid was to “get those moving who aren't moving,” (Crosby, 1979:37) on the quality journey and not just measurement itself. Crosby's ideas will be revisited in section 4.7 on maturity models.

In Europe, the European Foundation for Quality Management (EFQM) was founded in 1988 by heads of fourteen major European companies with the endorsement of the European Commission. The EFQM was founded to assist and foster a TQM approach in every aspect of an organisation's activities, both internal and in relation to the value chain and community. The impetus to found the EFQM came from the need to develop a European equivalent to the USA-based Malcolm Baldrige National Quality Award and the Deming Prize in Japan, both of which addressed the growing quality movements in those countries in the 1980s and 1990s. In 1991 the EFQM launched its EFQM Excellence model, which assessed eight fundamental management concepts at three levels of maturity. This model has since been put to use by tens of thousands of companies around the world to help them to improve the performance of their organisations (EFQM, 1999). By 2003 the EFQM had grown to over 800 member organisations in 38 countries worldwide, from large corporates to small enterprises. Jacques Delors, European Commission President at the time of the foundation of the

EFQM stated “the battle for quality is one of the pre-requisites for the success of your companies and for our competitive success,” (EFQM, 1999:online).

Locally, the South African Excellence Foundation (SAEF) was established in August 1997. The SAEF’s main purpose is to manage and promote continuous improvement through the use of the South African Excellence Model (SAEM). The SAEF claimed that a suitable tool had to be found whereby South African organisations, large and small, could upgrade their business practices and find a meaningful way of benchmarking their performance against world standards. This requires the use of internationally recognised benchmark measures, which focus on sustained improvement, rather than short-term gains. The SAEM combines the best of the USA Baldrige National Quality Program and EFQM quality management model (which differ in emphasis rather than in content), and incorporates a local emphasis in accordance with South African national priorities (SAEF, undated).

4.6.2 Challenges of quality management

Unlike the situation with the other elements of the proposed world-class performance framework which have been evaluated so far in this chapter, there appear to be relatively few challenges associated with the implementation of quality management. This may be because the concept of quality has now become so well established and ingrained in the performance of organisations that quality management has become second nature to many individuals, teams and organisations. In addition, as international standards have been long established in the areas of quality, the challenges associated with implementing quality may now have moved away from the quality movement itself and are rather focused on the implementation of the standards which have been established around the subject of quality management.

4.6.3 Quality management and knowledge management

Knowledge management as a field should, in principle, lend itself to the application of quality management in much the same way as any other area of business or

management endeavour. That implies that there need be no special focus on quality in respect to knowledge management if the concept of quality management as an objective has already been accepted by the organisation as a whole. Even if that is the case, how might quality management in the knowledge management field be recognised? Although there are quality awards to be won in a number of the world's leading English-speaking countries and regions, such as the USA, Europe and Australia (Six Sigma, undated), none of these awards has a particular knowledge management focus. The closest equivalent to these more generic quality awards in the knowledge management field would be the MAKE awards (Chase, 2003) already discussed in section 4.2.2.

Just as the concept of quality can be associated with knowledge management in terms of the alignment with general management concerns with quality, so the use of stories and storytelling by association could become part of a wider knowledge management-related activities to achieve recognised levels of quality. However, there seems little if any attempt so far to define quality standards in the area of stories and storytelling used as a practice for knowledge sharing. This is perhaps a reflection of the relative lack of maturity in this field. As a consequence it is extremely difficult to make a case for assessing and analysing the performance of organisations in their use of stories where quality management is used as a measure of achievement, although the general principles of quality management could justifiably be applied.

4.6.4 Quality management summary

Quality management is an issue which is likely to remain firmly on the agenda of organisations large and small, but on its own may be a necessary but not sufficient reason to be deemed world-class. The non-empirical study conducted for this chapter did not identify quality management issues specifically associated with knowledge management or with the use of stories and storytelling as knowledge sharing practices, although organisations implementing quality programmes could reasonably be expected to apply the principles of quality management to all their activities, including those associated with knowledge management. Attention will now be turned

to the last element of the framework for world-class performance: the capability maturity model.

4.7 Capability Maturity Models

4.7.1 Background to Capability Maturity Models

The Capability Maturity Model (CMM^{®7}) represents the final building block in terms of the proposed framework of world-class performance that has been used in this chapter. The growing interest in and use of the CMM approach in a number of fields over the last fifteen years suggests that the CMM concept should form part of an assessment of world-class performance.

What are capability maturity models?

“Capability [Maturity] Models describe both unique product development practices and the common management practices that any organisation must perform. These practices are organised into five levels, each level describing increasing control and management of the production environment, starting with ad-hoc performance and culminating in controlled, structured, continuous improvement. An evaluation of the organisation's practices against the model, called an assessment, determines the level, establishing where the organisation stands and which management practices the organisation should focus on to see the highest return on investment,” (SECAT, 1998:online).

The origin of the CMM can probably best be traced to the approach taken by Crosby (1979) in the way in which he built his 5-step quality management model (see section 4.6.1). The original concept for a process maturity framework, which evolved into the CMM, as it is now known, was developed at International Business Machines in the early 1980s (SEI, 2002). How and why did this happen? In the 1980s the USA Department of Defense was spending large sums, around \$30 billion per annum on software development and was looking for ways to improve development project success (SEI, 2002). In response to this need the Software Engineering Institute (SEI) at Carnegie-Mellon University in the USA was established (with support from the USA Department of Defense), through which was developed the Software Capability

⁷ CMM is an acknowledged as a registered trademark of the Software Engineering Institute. No further reference to the trademark will be made.

Maturity Model (SW-CMM) which was first released in August 1991. The SEI claimed that their research shows that software process improvement programs guided by the SW-CMM achieved an average return on investment of \$5.70 saved for every \$1 invested in process improvement (SEI, 2002), giving some justification for the faith shown by the USA government in the concept of maturity models as a tool for process and performance improvement.

The original SW-CMM model maturity levels can be represented by Table 4.3, using terminology taken from a standard issued by the ISO (ISO 15504) (Cusick, 1998). The table is useful in terms of understanding the way in which the CMM approach might be applied in a number of business areas, such as knowledge management⁸.

Level title	Characterised by	Achieved when	Primary concept
0: Not performed	Discipline is not being performed	N/A	Organisational starting point
1: Performed informally	Individual heroics	Essential elements performed	Learning the discipline
2: Planned and tracked	Work is planned and managed	Projects using defined process	Controlling local chaos
3: Well defined	Development of organisation standard processes	Projects use organisation standard processes	Sharing organisational learning
4: Quantitatively controlled	Definition of quantitative goals	Process metrics captured	Managing processes by data
5: Continuously improving	Quantitative strategic goals	Processes improved	Improvement based on data

Table 4.3 CMM level definitions
(Source: Cusick, 1998)

SEI (2002) indicated that an initiative was launched by a number of stakeholders during 1997 to investigate the development of an integrated framework for maturity models. This resulted in the publication of the CMM-Integrated (CMM-I) product suite in 2002, where CMM-I is specifically aligned to ISO 15504 (SEI, 2002).

Perhaps one of the most significant changes at the time that CMM-I was introduced

⁸ CMMs have appeared in other fields as diverse as Project Management (see for example the model of the Project Management Institute at www.pmi.org) and IT Governance (Information Systems Audit and Control Association at www.isaca.org) and in the area of IT service management (Niessink, Clerc and van Vliet, 2002).

was the provision of two representations of each CMM-I model: staged and continuous. “Each representation consists of process areas that contain a purpose statement, introductory text, specific goals, specific practices, generic goals and generic practices,” (SEI, 2002: online). Since the launch of the original SW-CMM there had been a good deal of debate as to whether the staged approach (where capability is measured for the organisation as a whole) or continuous approach (where capability is measured for each individual process element) makes best sense to a maturity framework. Garcia (undated) presents the evolving paradigms surrounding the various views on this debate, highlighting the fact that ISO 15504 (formerly known as SPICE, Software Process Improvement and Capability dEtermination), an international standard for software development, is based on the continuous improvement concept.

The essential difference between the two representations is the following (SEI, 2002):

- The staged representation prescribes the order of implementation for each process area according to maturity levels.
- The continuous representation offers a more flexible approach. A particular process area or set of process areas can be implemented in any sequence, with capability levels being defined by each process area or set of process areas. Process areas may thus be implemented at different rates.

See Table 4.4 for a comparison of the two representations.

Continuous representation	Staged representation
Process areas are organised by process area categories	Process areas are organised by maturity level
Improvement is measured using capability levels that reflect incremental implementation of a particular process area	Improvement is measured using maturity levels that reflect the concurrent implementation of multiple process areas
There are six capability levels, 0-5	There are five maturity levels, 1-5
There are an N+ number of practices because there are two types of specific practices: base and advanced	There are an N number of practices because there is only one type of specific practice. The concept of advanced practices is not used, but is addressed through other means
Capability levels are used to organise the	Common features are used to organise the

generic practices	generic practices
All generic practices are listed in each of the process areas	Only the generic practices that are applicable to that maturity level are listed in the process areas at that level
Generic practices exist for capability levels 1-5	Generic practices exist for maturity levels 2-5. A subset of generic practices used in the continuous representation are applied to each process area based on its maturity level
Overview text is written to describe the continuous representation	Overview text is written to describe the staged representation
An additional appendix describing equivalent staging is included, which allows a translation of a target profile into a maturity level	There is no equivalence concept that allows a translation of maturity levels into a target profile

**Table 4.4 Continuous and staged representation comparison
(Source: SEI, 2002)**

It can be seen from Table 4.4 that there is greater flexibility available in terms of the application of the continuous representation approach. The SEI (2002) also offered a useful comparison between the two alternate representations as shown in Table 4.5 (showing only the appropriate comparison items relevant for this research project).

Continuous representation	Staged representation
Grants explicit freedom to select the order of improvement that best meets the organisation's business objectives and mitigates the organisation's areas of risk	Enables to have a predefined and proven improvement path
Reflects a newer approach that does not yet have the data to demonstrate its ties to return on investment	Builds on a relatively long history of use that includes case studies and data that demonstrate proven return on investment
Enables increased visibility into the capability achieved within each individual process area	Focuses on a set of process areas that provide an organisation with a specific capability that is characterised by each maturity level
Provides a capability level rating that is primarily used for improvement within an organisation and is rarely communicated externally	Provides a maturity level rating that is often used in internal management communication, statement external to the organisation, and during acquisitions as a means to qualify bidders

Allows improvements of different process areas to be performed at different rates of improvement	Summarises process improvement results in a simple form – a single maturity level number
--	--

Table 4.5 Selected continuous and staged representation comparative advantages (Source: SEI, 2002)

How can an organisation be sure that the use of a maturity model approach is justified? Systems Engineering Capability Assessment and Training (SECAT) (SECAT, 1998) offered a checklist of five points to assist in identifying whether a CMM can help the organisation:

- Is your company successful in learning from past mistakes?
- Are you confident in your ability to deliver a product on time and within budget?
- Do you know if you're spending your limited improvement resources effectively?
- Are you successfully moving out on improvement efforts, having gotten quick agreement on which problems the company needs to fix first?
- Are you successfully deploying organisational standard processes, gaining quick acceptance from program personnel?

4.7.2 Challenges of Capability Maturity Models

As was the case with each of the other elements of the proposed world-class framework, there are some challenges associated with the implementation of the CMM approach.

Since the first CMM was introduced by the SEI in 1991 (Cusick, 1998) many organisations have sought to implement the maturity model approach in assessing how well they perform activities in a number of areas such as software development, systems engineering, IT support and project management (as discussed in section 4.7.1). The challenges associated with a successful implementation of CMM in any of

these application areas include the management commitment required to initiate a project to complete an initial assessment and then to undertake the remedial action required to change the performance of the organisation in order to achieve the desired level of performance (to improve the level of maturity as indicated by the model). This commitment is potentially very significant in terms of the financial and human resources required to complete even the initial assessment.

Paulzen and Perc (2002:4) had a criticism of the CMM in that it “only allows the evaluation of whole organisations, because each process is assigned to one maturity stage, and not assessed independently from the other processes.” They highlighted the fact that the ISO developed the ISO 15504 (which uses a continuous representation model as shown in Table 4.5) as a result of this limitation in CMM. It was in part as a response to this type of concern and to address the concerns of users of the CMM since the early 1990s that the SEI changed its approach in offering the continuous representation of the model in addition to the traditional staged representation (which was offered with the initial 1991 model). In part, the challenge of implementing the CMM was that certain of the process activities defined in the original model at levels three, four and five were in reality being performed by organisations whose overall assessment would only have positioned them at level 1 on the model (SEI, 2002). In essence, the approach adopted for the current iteration of CMM-I goes a long way to addressing these concerns.

One of the other challenges associated with the implementation of the maturity model approach is that there may not be clearly defined and agreed processes which can be assessed in a particular application area (particularly where that area is relatively immature, such as knowledge management and in particular the use of stories and storytelling to support knowledge sharing).

The next section will review the approaches discovered during the literature search of attempts to apply the CMM approach to the field of knowledge management in an attempt to overcome some of the challenges identified, whilst leveraging the full potential of the application of the CMM approach.

4.7.3 Capability Maturity Models and knowledge management

A number of maturity models for use in conjunction with knowledge management have been proposed or discussed (Collison, 2004; Ehms and Langen, 2002; Gallagher and Hazlett, 1999; Kazimi, Dasgupta, and Natarajan, 2002; Klimko, 2000; Kochikar, 2000; Kruger and Snyman, 2005; Paulzen and Perc, 2002). Each of these sources will be profiled in this section. However, none of these authors make any specific reference to the use of the Capability Maturity Model in relation to the role of stories and storytelling as knowledge sharing practices.

Gallagher and Hazlett (1999) presented their Knowledge Management Maturity Model (KM³) as a tool to evaluate current knowledge management capability and facilitate effective measurement of the impact of knowledge management strategies. They based their model on the three overlapping and interlocking concepts of knowledge infrastructure, culture and technology. They used the CMM approach of discrete levels of organisation performance tracking, but defined only four levels of maturity as opposed to the usual five levels in the CMM. Their four levels were: Aware, Managed, Enabled and Optimised (Gallagher and Hazlett, 1999).

Klimko (2000: online) discussed three maturity models in the context of knowledge management and stated that, the “obvious advantage of maturity models is their simplicity which makes them easy to understand and communicate.” The three maturity models Klimko focused on were: Microsoft’s IT Advisor (no longer available); the KPMG maturity model⁹ (based on research conducted in the UK in 1998 and 2000); and Gallagher and Hazlett’s KM³ model. Klimko presented his own ideas which were only partially developed into a maturity model, although he did define fifteen process areas at five levels of maturity.

The maturity model proposed by Kochikar (2000) was based on work carried out at Infosys Technologies, a leading Indian IT services supplier. The fundamental assumption of this model was that knowledge management consists of three main elements: people, process and technology. The five level maturity model proposed by

⁹ The source given by Klimko (2000) was untraceable. As none of the other authors consulted referred to this model there will be no further discussion of the KPMG model.

Kochikar (2000) has, for each level, a set of key result areas defined (a total of fifteen for the model). Although the model uses the same number of levels as a traditional CMM, the terminology used in the level descriptions in the Kochikar (2000) model is significantly different. In addition, the model offers only the traditional staged representation as opposed to the more recent developments in the move from staged to continuous models as discussed earlier in this chapter (section 4.7.1). A concern with this model must also be that there is no evidence of any empirical work to improve the model, nor does the model appear to have been subjected to any peer-review process.

Another commercial organisation, this time based in Germany (Siemens) is the source of the Knowledge Management Maturity Model (KMMM®). This was developed with the intention of “providing a reliable instrument for defining one’s current position and driving long-term corporate development,” (Ehms and Langen, 2002: online). The model is based on the principles of the CMM, with a recommended six-phase approach to the implementation of the KMMM. The model consists of eight key areas of knowledge management (based, according to Ehms and Langen, on the eight enablers of the EFQM Excellence Model which was referred to in section 4.6.1), namely

- Strategy/knowledge goals
- Environment, partnerships
- People, competencies
- Collaboration, culture
- Leadership, support
- Knowledge structures, knowledge forms
- Technology, infrastructure
- Processes, roles, organisation (Ehms and Langen, 2002: online).

This model was presented at an APQC conference in 2000 but since then has received little attention and it was not referred to by Kazimi *et al.* (2002) or by Kruger and Snyman (2005).

Paulzen and Perc (2002) in their study, identified ten different models for assessment of knowledge management, only one of which, from Ehms and Langen (2002), was defined as a maturity model using the five-level CMM approach which has been discussed in this chapter. Paulzen and Perc (2002) then proposed their own model, the Knowledge Process Quality Model. The structure of this model was based on four dimensions: maturity stage (based on CMM-I, but with some terminology differences); knowledge activity (six processes as defined in Table 2.1); management area (people, organisation and technology) and assessment structure (five assessment attributes at each maturity stage).

Kazimi *et al.* (2002) claimed that there are four objectives for current knowledge management maturity models: the maturity framework; maturity plateaus; maturity dimensions; maturity drivers. Without referring to any specific existing knowledge management maturity model they claim that these models need additional perspectives to be taken into account to develop a new knowledge management maturity model. The new perspectives that they propose are: knowledge needs and levels; knowledge creation currency; knowledge management and business segments, and finally, knowledge management and e-business. Kazimi *et al.* (2002) recommended the four objectives of existing models and their own four new perspectives are taken in combination to create a new maturity model which must be developed. However, the authors did not themselves make a proposal of what this new model should look like. Although the ideas Kazimi *et al.* (2002) have a certain attraction, they should also be treated with some caution, as the views are published on a commercial web site without any form of formal referencing system to the source of their proposals nor do they attribute the sources referenced in their document.

Collison (2004) presented a model based on his experiences at British Petroleum. This model also used the five level maturity approach of the CMM and had five assessment areas: knowledge management strategy; leadership behaviours; networking; learning before, during and after, and capturing knowledge. Text descriptions accompany each of the five focus areas at each of the five levels. There is no evidence that this model has been subjected to any practical application, nor formal publication other than being made available to members of the community of people who subscribe to Collison's web site.

Kruger and Snyman (2005) discussed the views of a number of authors including Gallagher and Hazlett (1999), Kazimi *et al.* (2002), Klimko (2000), and Kochikar (2000), in addition to proposing their own Strategic Knowledge Management Maturity Model, consisting of six phases: ICT as an enabler of knowledge management; deciding on knowledge management principles; the ability to formulate an organisation-wide knowledge policy; building knowledge strategy/strategies; formulation of knowledge management strategies, and ubiquitous knowledge. This model is based on the argument that, “knowledge management maturity should also encompass the ability to identify and relate knowledge management issues to organisational growth and profitability,” (Kruger and Snyman, 2005:online) and takes into account the joint management of ICT and knowledge management. There is a recommendation that once the organisation has reached the final phase that they should return to phase one of the maturity model to further enhance the performance of the organisation in the area of knowledge management.

In summary, there are several models of maturity in the field of knowledge management which have been proposed. Even though there has been some debate and disagreement over the relevance of the CMM approach, there is a remarkable degree of consistency in the principles associated with the various models. Perhaps the underlying issue with all these models is the lack of a clear agreement as to the nature of knowledge management and the various processes, performance areas and underlying infrastructure elements which need to be managed through the maturity model. None of these models specifically addresses the issue of the use of stories and storytelling as knowledge sharing practices.

4.7.4 Capability Maturity Models summary

The application of the CMM approach is clearly not limited to only one or two fields of management and the seemingly ever-growing list of areas (such as software and systems engineering, project management and knowledge management) indicates the possibility of applying the CMM in an ever increasing number of fields. There are

undoubtedly challenges associated with the implementation of the CMM approach, but it is interesting to note the degree of commonality between the quality management approach and the possibility of integrating best practices and benchmarking under the umbrella of CMM.

It is also interesting that over the last several years a number of attempts have been made to adopt and adapt the CMM approach to the field of knowledge management. This should not be surprising as an increasing number of organisations across the globe are looking for ways to increase their competitiveness and in the context of the proposed framework for world-class performance the CMM approach is more than justified as being an element of that framework.

4.8 Summary

This chapter opened with a discussion on the nature of world-class performance and proposed a framework which could be used by organisations to improve their understanding of the nature of world-class performance.

The five elements of the proposed framework were then each discussed in some detail, with an explanation as to the background, development, challenges and applicability to the field of knowledge management and (where possible) within that context to the issue of the use of stories as knowledge sharing practices.

In order to be able to address the research problem, it was recognised that a clear understanding would be required of the nature of knowledge management and of stories and storytelling, particularly within a knowledge management strategy. In addition to that, at the time that the research project was conceptualised, it was decided to frame the research in terms of world-class performance.

The literature search indicated that although a number of practices in the field of knowledge management have been identified and are in general use these were not adequately defined to be able to address the research problem in terms of the assessment of the use of stories and storytelling as knowledge sharing best practices.

Given the research problem and the methodology selected (a case study of one organisation) benchmarking alone would also not be the most appropriate practice to assist with the research problem. This is because it was not intended to use any form of external benchmarking and it may have proven problematic to base the research problem and methodology on internal benchmarking where the situation at the case study company could not be predicted in advance (internal benchmarking may not have been feasible).

It became clear from the literature study that although the issue of recognised standards is well established in the number of fields, that is not the case in knowledge management. Therefore, to establish an assessment and analysis based on knowledge management standards when no such standards exist (other than the interim standards in Australia) would again prove to be not feasible or at least problematic.

The close relationship between the quality management movement and the development of the CMM approach is an interesting one, particularly in the light of the work of Crosby (1979). However, a narrow focus on quality would not necessarily help to answer the main research problem. At the same time, the principle of using a Capability Maturity Model in assessing and analysing the use of stories and storytelling, as knowledge sharing practices within the knowledge management strategy at the case study organisation, had a number of attractions. Whilst the research methods were being developed, it became clear that the Capability Maturity Model approach would form part of the research instrument to be developed. When it was eventually introduced to the case study organisation, it was well received as being familiar. This was due to a version of the capability maturity model approach already being in use; something that was unknown to the researcher at the start of the project.

Having found the 'best-fit' between the research problem and the use of the CMM, it was still necessary to identify whether the continuous or staged representation would be more appropriate to use in the research methods. It was decided to follow the continuous representation approach (see Table 4.4) as this was expected to allow a more complete set of processes (associated with knowledge sharing and the use of

stories as knowledge sharing practices) to be assessed and analysed and recommendations made.

The next step, therefore, is to look in more detail at the specific research methodology to be used in the empirical research phase of the research project. This will be covered in the following chapter.

5 Research methodology

5.1 Introduction

This chapter presents the research philosophy, approach, design and methods used to address the research problem as outlined in Chapter 1. It will be shown that within the terms as defined by Hussey and Hussey (1997), this research project sought to analyse and explain (the purpose of the research), through mainly qualitative methods (the process of the research) using deductive logic based on existing theories, the role of stories and storytelling as knowledge sharing practices (the logic of the research) and the outcome is one of applied research (applying the research to a particular organisation). This is in line with the overall research problem as identified in Chapter 1.

There are three main sections to this chapter. These are the research philosophy (5.2), research approaches (5.3) and research design or strategy (5.4). Each will deal in turn with a brief explanation of the overall research paradigm being presented and the reason for the selection of the particular paradigm for this research project.

5.2 Research philosophy

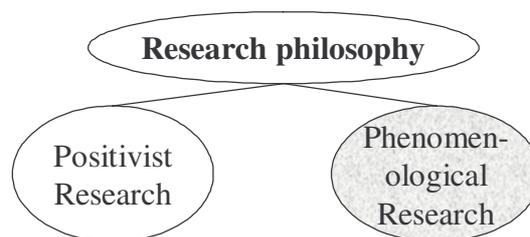


Figure 5.1 Research philosophy alternatives

For this study, selecting an overall research philosophy is the choice between two primary alternatives: between a positivist or a phenomenological philosophy. A number of authors (Easterby-Smith *et al.*, 1991; Hussey and Hussey, 1997; Saunders

et al., 2000) have highlighted the main elements of this choice involving research philosophy. In particular, Easterby-Smith *et al.* (1991:27) offer these key features of the two philosophy paradigm alternatives:

	Positivist paradigm	Phenomenological paradigm
Basic beliefs	The world is external and objective	The world is socially constructed and subjective
	Observer is independent	Observer is part of what observed
	Science is value-free	Science is driven by human interests
Researcher should	Focus on facts	Focus on meanings
	Look for causality and fundamental laws	Try to understand what is happening
	Reduce phenomenon to simplest elements	Look at the totality of each situation
	Formulate hypotheses and then test them	Develop ideas through induction from data
Preferred methods include	Operationalising concepts so that they can be measured	Using multiple methods to establish different views of phenomena
	Taking large samples	Small samples investigated in depth or over time

Table 5.1 Research paradigms
(Source: Easterby-Smith *et al.*, 1991:27)

Given the research problem as outlined in Chapter 1, the best fit was to follow the phenomenological paradigm. This was done recognising the following parameters identified by Hussey and Hussey (1997:54) for this phenomenological paradigm:

- It tends to produce qualitative data: this would fit well with the case study approach which is explained in section 5.4
- Data is rich and subjective: the qualitative data would be rich by nature, and the gathering process would be subjective due to the level of involvement of the researcher
- The location is natural: the setting for this research was in a commercial organisation (rather than a laboratory setting)

- Reliability is low: the possibility of lower reliability data would be countered by the use of triangulation
- Validity is high: this would be seen as a result of the empirical data gathering exercise.

5.3 Research approaches

Research can have elements which are based upon a non-empirical approach, an empirical approach, or a combination of the two. For the empirical approach, there are three primary dimensions which can be evaluated for use:

- Qualitative/quantitative
- Deductive/inductive
- Subjective/objective.

These do not necessarily represent a simple either/or choice, but should rather be seen as the extent to which elements of the approach apply. Each of these will be explored in turn.

5.3.1 Non-empirical / empirical research

Non-empirical research

One of the first considerations to be faced is the pre-existing body of knowledge that exists in a particular field. This should be used as a source of reference for research previously conducted in the chosen field of enquiry, as well as a source of the body of theory which pertains to the selected subject area. Some research depends entirely upon this research method (more generally known as searching and reviewing the literature) on a certain subject, where the subject may be one, for example, of an historical nature which does not lend itself to any other form of investigation.

The literature review was used in this research to address the research problem as identified by Saunders *et al.* (2000:46):

- To include the key academic theories within the chosen area: these were identified in Chapters 2, 3 and 4
- To demonstrate that your knowledge of your chosen area is up-to-date: as demonstrated in Chapters 2, 3 and 4
- To show how your research relates to previous published research: as will be shown in Chapter 7
- To assess the strengths and weaknesses of previous work including omissions or bias and take these into account in your arguments: as will be shown in Chapter 7
- To justify your arguments by referencing previous research: as will be shown in Chapter 7
- Through clear referencing, to enable those reading your project report to find the original work you cite: as per the references supplied in this document
- By fully acknowledging the work of others you will avoid charges of plagiarism: as per the referencing and bibliography supplied in this document.

Empirical research

According to Hussey and Hussey (1997:10), “four different types of research purpose exist: exploratory, descriptive, analytical or predictive.” Whatever the purpose of the research, empirical evidence is required. They define empirical evidence as, “data based on observation or experience.” This understanding of the importance of gathering empirical data by observation or experience is also identified by Easterby-Smith *et al.* (1991). They use the term *fieldwork* which they say is the study of real organisations or social settings, and that this research may use positivist or phenomenological methods.

This research project was designed to take into account both the non-empirical and empirical research approaches. The non-empirical approach was used to inform the structuring and execution of the empirical research activities.

5.3.2 Qualitative / Quantitative approach

Another choice was whether to adopt a quantitative or qualitative approach, or some mix of the two. Many authors (Cavaye, 1996; Darke *et al.*, 1998; Hussey and Hussey, 1997; Leedy and Ormrod, 2001; Miles and Huberman, 1994; Myers, 1997) have commented on the choice between qualitative and quantitative methods in fieldwork (empirical) research.

Myers (1997), distinguished between qualitative and quantitative research methods:

“Quantitative research methods were originally developed in the natural sciences to study natural phenomena. Examples of quantitative methods now well accepted in the social sciences include survey methods, laboratory experiments, formal methods (e.g. econometrics) and numerical methods such as mathematical modelling. Qualitative research methods were developed in the social sciences to enable researchers to study social and cultural phenomena. Examples of qualitative methods are action research, case study research and ethnography. Qualitative data sources include observation and participant observation (fieldwork), interviews and questionnaires, documents and texts, and the researcher’s impressions and reactions,” (Myers, 1997: online).

As this research would seek to understand, “people and the social and cultural contexts within which they live,” (Myers, 1997: online), a mainly qualitative approach to data gathering was used. The selection of a qualitative approach also fits well with Hussey and Hussey’s views (1997:20) who defined qualitative research as, “a subjective approach which includes examining and reflecting on perceptions in order to gain understanding of social and human activities.” This was planned to be the case for this research project.

Quantitative methods were used for part of the empirical study, to assist in the assessment of maturity of knowledge sharing and maturity in the use of stories and storytelling as knowledge sharing practices.

5.3.3 Deductive / Inductive

The choice between the deductive or inductive research paradigm has been discussed by a number of authors (Cavaye, 1996; Hussey and Hussey, 1997; Perry, 2001).

Hussey and Hussey (1997:19) defined deductive research as “a study in which a conceptual and theoretical structure is developed which is then tested by empirical observation; thus particular instances are deducted from general influences.”

Deductive research is a study in which theory is tested by empirical observation. The deductive method is referred to as moving from the general to the particular.

Inductive research is a study in which theory is, “developed from the observation of empirical reality; thus general inferences are induced from particular instances, which is the reverse of the deductive method since it involves moving from individual observation to statements of general patterns or laws,” (Hussey and Hussey, 1997:13).

Cavaye (1996:236) does not exclude the combined use of both inductive and deductive approaches, saying they can “both be used in the same study.” The possibility of using both inductive and deductive approaches in the same case study has also been discussed by Perry (2001: 307). He describes a continuum from pure induction (theory-building) to pure deduction (theory-testing). He advocates taking a middle-ground of a balance between the two, striking the position of what he calls “theory confirming/disconfirming” approach.

In this study a mainly deductive approach has been used, with the emphasis on an exploratory approach to improve the understanding of the case study organisation which was being investigated, with particular emphasis on the use of stories and storytelling as knowledge sharing practices.

5.3.4 Subjective / objective

Another significant choice which exists in the research paradigm to be adopted is the extent to which the researcher is subjective (involved in or has an influence on the research outcome) or objective (distanced from or independent) in the execution of the fieldwork (empirical work).

Easterby-Smith *et al.* (1991:33) discussed the “traditional assumption that in science the researcher must maintain complete independence if there is to be any validity in the results produced.” As outlined in Table 5.1, the phenomenological research paradigm is, by its very nature, subjective. The use of this paradigm necessarily requires involvement in both real world circumstances as well as the involvement (sometimes directly) of the researcher himself. It is accepted that such a subjective approach, as used in the research, requires the recognition of any influence or limitation such subjectivity may have on the conduct or findings of the research.

What is important here is to recognise the fact that phenomenological research certainly involves a subjective approach, which should be recognised in the analysis and interpretation of the data gathered. Attention was paid to this aspect in this research project.

5.4 Research design or strategy

Considering the various alternatives, the purpose of this section is to indicate what type of study was undertaken to provide acceptable answers to the research problem and sub-problems.

5.4.1 Research design alternatives

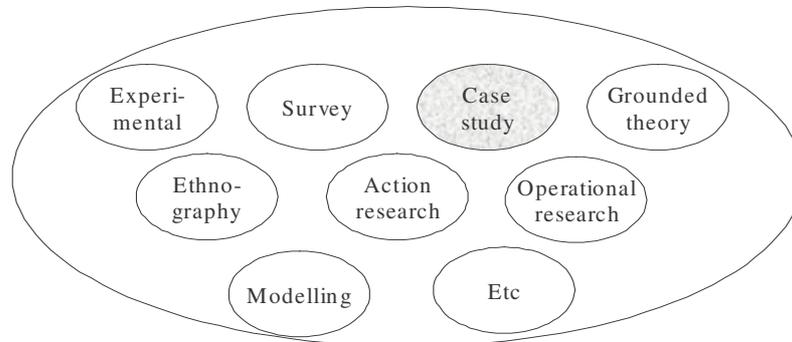


Figure 5.2 Research design alternatives

The research design or strategy alternatives are many. According to a number of authors (Cavaye, 1996; Darke *et al.*, 1998; Hussey and Hussey, 1997; Leedy and Ormrod, 2001; Miles and Huberman, 1994; Powell, 1997) they include alternatives such as the creation of an experiment (common in pure scientific research); surveys (often used where large volumes of data are involved with quantitative methods of analysis); grounded theory (where the theory is generated by the observations rather than being decided before the study); ethnography (a phenomenological methodology which stems from anthropology, which uses observed patterns of human activity); action research (where the research takes more of the form of a field experiment); modelling (where particular models are developed as the focus of the research activity); operational research (which looks at activities and seeks to understand their relationship, often with particular emphasis on operational efficiency), and, finally, case studies (which seek to understand social phenomena within a particular setting).

Given the nature of the research problem as outlined in Chapter 1, it was decided to select the case study alternative as being the most appropriate for this research project. This research paradigm will now be explored in some detail in the following sections.

5.4.2 Case study research overview

The case study as a research design method has been explored by a number of authors (Cavaye, 1996; Darke *et al.*, 1998; Gillham, 2000; Jensen and Rodgers, 2001; Perry, 2001; Stake, 1995; Tellis, 1997; Welman and Kruger, 1999; Yin, 1994). Yin (1994:13), for example, defined a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context.” A strong advocate of the case study approach to research is Stake (1995). According to Stake, (1995:xi) “a case study is intended to catch the complexity of a single case.” He goes on to say that, a “case study is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances,” and that, “the time we spend concentrating on the one may be a day or a year, but while we so concentrate we are engaged in case study,” (Stake 1995:2).

The execution of this research project was conducted based on the guidelines supplied by Myers (1997) who suggested the case study method will involve at least four stages of work:

- Determining the present situation: in this study achieved through the structured and semi-structured interviews
- Gathering information about background to the present situation: in this study achieved through interviews and observation and by referring to documentation and other sources available from the case study organisation
- Gathering more specific data: in this study achieved through the in-depth exploration of the use of stories and storytelling in the case study organisation, by further interviews, observation and collection of artefacts
- Presenting an analysis of findings and recommendations for action: in this study achieved through the feedback provided on an interim and final bases to the case study organisation, as well as the production of the final research report.

In line with the advice of Yin (1994), the unit of analysis was defined as a single organisation, with a cross-section group (a single Community of Practice in Kumba Resources, to be introduced in Chapter 6) within the organisation being defined as the

focus of the study. Yin says that subunits, “can often add significant opportunities for extensive analysis, enhancing the insights into the single case,” (Yin, 1994:44) and, as will be seen from the following chapters, this proved to be the case for this research project.

This was in line with the advice of Yin (1994:38), who suggests that the use of only one case can be justified if at least one of the following criteria is met

- The case is a critical one for confirming, challenging or extending a theory, because it is the only one that meets all the conditions
- The case is rare or extreme and finding other cases is highly unlikely
- The revelatory case provides unusual access for academic research.

The third of these criteria is met in the current study, as the subject organisation (Kumba Resources) showed unusual willingness to participate in the case study. The selection of a single case also complies with Cavaye (1996:236) who stated that the “study of a single case enables the researcher to investigate a phenomenon in depth...enabling a rich description and revealing its deep structure.”

The execution of this current case study research also complies with the approach recommended by Hussey and Hussey (1997) in terms of the stages of the research project (which should be expected to, and did have, some overlap between the stages):

- Selecting your case: the case study organisation was selected after a preliminary investigation into a number of possible cases, taking into account both the focus of the research study as well as the level of commitment from the case study organisation
- Preliminary investigations: these were conducted prior to the empirical data gathering phase (taking into account the non-empirical investigation into the nature of knowledge management, the use of stories for knowledge sharing and the context of world-class performance). These investigations continued with the case study organisation in the lead up to the commencement of the data collection stage.

- Data collection stage: this stage included the gathering of both qualitative and quantitative data through a series of interviews (using structured, semi-structured and unstructured techniques) as well as the gathering of a number of artefacts (documents and so on) to assist in adding depth to the data collected
- Analysis stage: this commenced once the data collection activities had commenced (in order to give further direction to the latter part of the empirical data collection stage), continuing through the remainder of the fieldwork, leading up to the writing of the report
- Report stage: elements of the report were produced as the analysis was completed and the production of the report continued until final submission towards the end of the project, both in the form of a report back to the case study organisation as well as the formal submission of the report for academic purposes.

Types of case studies

Jensen and Rodgers (2001:237-239) listed the types of case studies that exist:

- *Snapshot case studies.* Detailed, objective study of one research entity at one point in time.
- *Longitudinal case studies.* Quantitative and/or qualitative study of one research entity at multiple time points.
- *Pre-post case studies.* Study of one research entity at two time points separated by a critical event. A critical event is one that on the basis of a theory under study would be expected to impact case observations significantly.
- *Patchwork case studies.* A set of multiple case studies of the same research entity, using snapshot, longitudinal, and/or pre-post designs. This multi-design approach is intended to provide a more holistic view of the dynamics of the research subject.
- *Comparative case studies.* A set of multiple case studies of multiple research entities for the purpose of cross-unit comparison. Both qualitative and quantitative comparisons are generally made.

This study was undertaken as a snapshot type of case (see Figure 5.3), where the focus was on the use of stories and storytelling as knowledge sharing practices, at the case study organisation, over the period from October 2003 to February 2005¹. This involved a series of contacts to understand the nature of knowledge sharing and the use of storytelling in the organisation. The next section will discuss the selection of the organisation.

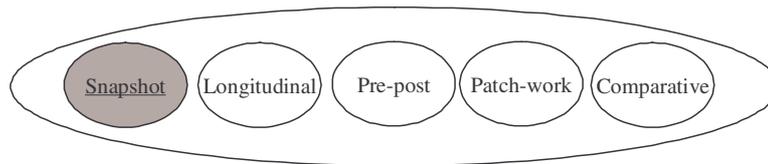


Figure 5.3 Choice of case study type

5.4.3 Selection of the case study organisation

Hussey and Hussey (1997:67) proposed that, “you may wish to select a critical case which encompasses the issues in which you are most interested.” Darke *et al.* (1998:281) also offer some useful advice when they suggest that the participation of organisations in the case study research will most easily be secured where the following benefits or ‘what’s in it for them’ is clearly identified. They suggest the following should be clear:

- An overview of the organisation’s position in relation to the research question
- A rich description and understanding of the nature of the phenomenon in the organisation
- That the research results will be pertinent to them
- The results will be available within a useful timeframe.

This advice was followed in the relationship with the case study organisation (Kumba Resources).

¹ This period includes the definition of the research project, planning of the project, gathering of the empirical data (during 2004) and feedback to the research participants (2005).

There are four main factors which relate to the selection of the case study organisation (Yin, 1994) which will be briefly discussed in the following sections: relevance, feasibility, access, and application.

Relevance

Yin (1994) defined relevance as the extent to which the organisation selected for the case study suits the purpose of the study. In looking for a suitable organisation for the case study, the relevance of what was to be studied was dependent in part upon the knowledge management context within the organisation at the outset. As the researcher had been involved in the knowledge management community in South Africa through his work over several years, it was possible to identify a number of companies that were active in knowledge management and where the relevance of an investigation into knowledge sharing would be easy to establish. In particular, the investigation into stories and storytelling would be most relevant where the case study organisation had several characteristics: a large employee population; geographically diverse locations, and an established interest in knowledge management. The case study organisation selected met these criteria.

Feasibility

Yin (1994) when discussing feasibility or practicality of the research being conducted, required that the researcher should be able to conceptualise, plan, execute and report back on the research project with the case study organisation. For this study, the practical aspects of the research determined that the case study organisation's head office should be within reasonable reach of the researcher's home base (this excluded organisations based some distance away)², and have the appropriate managerial and operational support in place to ensure successful completion of the project (this was evident from the preliminary discussions with Kumba Resources). Overall, Kumba Resources met these criteria.

² The researcher did travel to a number of remote locations and use the telephone to contact other locations not visited, but the majority of contacts were planned to be through the case study role players located at the head office location.

Access

Yin (1994) identified that one of the concerns for the conduct of the research is that the full co-operation of the organisation should be secured for the duration of the research. The practical aspects of the research determined that the case study organisation should be: accessible, in the sense that the nature of the business should be non-security sensitive; willing to participate in the research (this included support at both the executive level for approval and the operational level for participation in the research), and have a clearly identified internal champion for the project. All of these criteria were satisfied by Kumba Resources.

Application

Yin (1994) also identified the extent to which the case study method can be applied in a particular situation. In identifying possible candidates for the research, a number of factors were taken into account. These included size (unit of analysis considerations); industry sector (nature of the business, with a focus on industrial-type organisations as opposed to service organisations), and the status of the focus on knowledge management and knowledge sharing and, therefore, the potential to leverage the findings of the research. Kumba Resources was a sufficiently large organisation (approximately 10000 employees spread over a number of physical locations), part of the mining sector (of interest due to its significant role in the South African economy), and relatively mature in its approach to knowledge management. Taking all these factors into account, Kumba Resources represented a potentially fruitful subject for the case that the investigation.

5.4.4 Case research data methods

5.4.4.1 Data sampling

A basic choice in formulating the approach to data sampling exists between probability sampling (which includes simple random sampling; systematic sampling; stratified random sampling, and cluster sampling) and non-probability sampling (see next section for more details). Given the nature of the research problem outlined in Chapter 1, it became clear that non-probability data sampling methods would be appropriate for this research study. Due to the largely qualitative nature of this project in the judgment of the researcher there was no role for probability sampling hence that particular sampling approach was not used nor is it further discussed.

Non-probability sampling methods

A number of views by various authors (Gerson and Horwitz, 2002; Hussey and Hussey, 1997; Jankowicz, 2000; Leedy and Ormrod, 2001; Miles and Huberman, 1994; Page and Meyer, 2000; Powell, 1997; Welman and Kruger, 1999) on the subject of non-probability sampling were identified during the investigation into the appropriate research methods to be used for this case study project. Not all of those views used the same terminology and classifications for the non-probability sampling method. For the purpose of this research Powell's classification was followed. Powell (1997) identified that non-probability sampling includes: the accidental sample, the quota sample, the purposive sample, the self-selected sample and the incomplete sample.

Considering the nature of the research, the purposive sampling method was selected as the most appropriate. This is also in line with the argument of Miles and Huberman (1994:27) who stated that, "qualitative samples "tend to be purposive rather than random" at least in part because the "universe is more limited" and that "much qualitative research examines a single 'case', some phenomenon embedded in a single social setting."

Powell (1997) discussed the purposive sample in some detail and stated that, “at times, it may seem preferable to select a sample based entirely on one's knowledge of the population and the objectives of the research,” (Powell, 1997:69). This is also in line with Leedy and Ormrod (2001:219) who used the term *purposive sampling* where people or other units are chosen for a particular purpose, implying the use of judgment on the part of the researcher. This was the situation for this research project, with the focus on a single organisation, Kumba Resources, and within the overall organisation, the Continuous Improvement Community of Practice (CICOP) as sample. A description of the Kumba Resources CICOP will be provided in the next chapter.

5.4.4.2 Data collection methods

A wide variety of possible data collection methods are available under the case study approach. These include the use of the questionnaire; interviews (in a variety of formats including unstructured, structured and semi-structured); observation; gathering of documentation and artefacts. The possibility of using more than one of these methods was suggested by Gillham (2000:13) who said that, “case study is a main method. Within it different sub-methods are used: interviews, observations, document and record analysis...and so on.” Saunders *et al.* (2000) also included in their multi-layer approach to research a variety of data collection methods: secondary data (e.g. documentation); observation; interviews, and questionnaires. Powell (1997) also discussed data collection techniques, specifically identifying three methods: questionnaire, interview and observation. Powell (1997:89) stated that these are, “data collection techniques or instruments, not research methodologies, and they can be used with more than one methodology.” This multi-method approach to data collection is also supported by Jankowicz (2000) who advised using a number of alternatives, which were all used in this research project:

- Historical artefacts: in this case study that included corporate materials such as annual reports, minutes of meetings
- Data gathering in person or via phone: in this case study that included key informant interviews

- Data gathering through participant observation: in this case study that included observation during meetings of various types.

This approach also conforms to the work of Yin (1994:80) where he identified at least six sources of evidence in case studies: documents; archival records; interviews; direct observation; participant-observation, and physical artefacts. The combined advice of these authors was followed in the selection of the data collection methods used in this research project which included interviews (structured, unstructured and semi-structured), observation, and analysis of a variety of artefacts and documents. Each of the data collection methods used in this research project could be considered part of an overall approach to improving the quality and validity of the research data through an approach known as triangulation.

Triangulation is an approach intended to increase the quality and validity of the qualitative research methods and has been commented on by a number of authors (Darke *et al.*, 1998; Easterby-Smith *et al.*, 1991; Gillham, 2000; Myers, 1997; Patton, 2002; Stake, 1995; Yin, 1994). Darke *et al.* (1998), for example, advocated the use of triangulation to avoid bias on the part of the researcher, either in terms of the influence the researcher has on the behaviour of participants or in terms of the bias the researcher brings himself into the conduct of the research. Triangulation should help to overcome both these potential sources of bias even if bias is not totally eliminated. Further on the subject of triangulation, Stake (1995:114) said that triangulation includes, “data triangulation (from other sources), investigator triangulation (use of observers), methodological triangulation (using multiple sample types and sources).” Gillham (2000) also advocates triangulation as a method of validating the research, as does Yin (1994:91), stating that, “a major strength of case study data collection is the opportunity to use many different sources of evidence.”

During this study it was planned to use triangulation as part of the empirical data gathering activities. Stake’s (1995) four types of triangulation were used in this research as follows:

- Data triangulation. Multiple sources were used, as explained in the sections below. These included published material made available by the case study organisation; interviews conducted with case study participants; meetings held to track the progress of the research and for other purposes, and observations made by the researcher himself.
- Investigator triangulation. Where appropriate, observers were used during the initial data-gathering phase. These observers were appointed by the knowledge management team in the case study organisation and their role was to ensure the integrity of the quantitative and qualitative data gathering activities of the researcher.
- Theory triangulation. This was achieved through the use of the various theories of knowledge management which were referred to in the construction of the quantitative and qualitative data-gathering activities; in the construction of the maturity measuring assessment, and in the construction of the specific storytelling initiatives which formed part of the research.
- Methodological triangulation. This was achieved through the use a variety of data gathering tools and techniques: quantitative and qualitative methods; interviews and observation, and triangulation of data sources.

Each of the three major data collection methods used during this research study will now be explored in more detail.

Interviews

During the development of the methodology to be used for the field research the interview was selected as the primary data gathering technique (in preference to the survey approach) as being best suited to the case study method. Although there are various authors (Gerson and Horwitz, 2002; Mouton, 2001; Patton 2002; Saunders *et al.*, 2000; Stake, 1995; Struwig and Stead, 2001; Tellis, 1997; Welman and Kruger, 1999) who have commented on the use of the interview as a data collection method there is no single definition among them as to the only right way in which an interview can be used as a data collection method.

For the purposes of this research the following types of interviews were used:

- Structured interview. This offered a series of fixed responses, using closed questions (only used during the maturity assessment interviews).
- Semi-structured interview. This offered free responses from participants to specific questions.
- Unstructured interview. This allowed the participants to express themselves without any restriction.

Each of these interview types has its advantages and disadvantages. In general terms, the more structured the interview, the easier is the analysis; the less structured the interview the more difficult the analysis. The following explains how the interviews were conducted:

General considerations

- Purpose of the interviews and roles of the interviewer and interviewees. A brief explanation was given of the purpose and format of the interview to be conducted.
- Use of observers. Where possible and appropriate, use was made of observers drawn from the Kumba Resources knowledge management team, who had the role of ensuring the integrity of the interview process.
- Length of interviews. The structured interviews which used the research instrument were planned to be of roughly one hour's duration (actual duration varied from 45 to 75 minutes). The semi-structured and unstructured interview durations varied from 30 minutes to two hours, according to the setting and the purpose of the interview.
- Size of interview group. Some interviews were conducted on a "one-on-one" basis (in particular for the administration of the research instrument during the structured interviews) and others were conducted with multiple respondents present.

- Mixture of locations. Some interviews were conducted at the normal work location of the interviewee. Other interviews were conducted at a central location as a matter of convenience to the researcher and observers.
- Language issues. Many of the interviewees did not have English as their mother tongue. This was addressed as part of the interview briefing where permission was gained before proceeding that the interview should be conducted in English.
- Use of telephone and face-to-face interview techniques. During the planning of the field research it was anticipated that some interviews would take place over the telephone while others would be conducted face-to-face (due to be geographical dispersal of the members of the Kumba Resources CICOP). This, indeed, turned out to be the case.
- Use of digital recorder and hand-written notes. Where appropriate the interviews were captured on a digital voice recorder (due to logistical constraints, including size of the venues and acoustics, selective use of the digital recorder was made) with use being made of hand-written notes either as a complement to the recorder or as an alternative. The voice recordings and notes were used in the analysis stage.
- Tracking of interview data. A log was created of the data captured, indicating where and when the interviews took place and who took part in the interviews.

Structured interviews

A research instrument was developed (based on the findings from the non-empirical research) to establish the level of maturity of knowledge sharing and the level of maturity of the use of stories and storytelling, and was administered during a structured interview. The instrument (see Appendix 1) development and use proceeded as follows:

- Purpose. The research instrument was designed to capture opinions of the interviewees via a formal maturity rating scale (quantitative) as well as via focused discussion questions (qualitative). This allowed for both a structured

assessment as well as the identification and discussion of other issues relevant to the research topic using a semi-structured technique.

- **Development.** Once the draft initial assessment instrument had been compiled, it was tested and reviewed prior to use with observers drawn from the case study organisation knowledge management team. As a result of this test, some changes were made to the format of the instrument to improve ease of use and understanding.
- **Pilot of the instrument.** A pilot session was held over the telephone with the knowledge management team observers prior to the use of the instrument with the live interviewees. The pilot enabled a number of issues to be tested, such as the planned duration; use of the digital recording device over the telephone, and the use of the quantitative and qualitative questions approach over the telephone.
- **Conduct of structured interviews.** These were held at a mutually agreed time and place. Interviews were conducted with individuals or small groups (up to a maximum of three participants plus an observer).
- **Feedback of structured interview data.** The data gathered during the structured interviews was fed back to the participants. This served four purposes: to gain agreement that the data captured reflected the interview held; to give an opportunity for further comments based on the feedback provided; to encourage ongoing participation in the research, and as a courtesy to the participants concerned to thank them for their role in the project. The feedback happened via two mechanisms:
 - Individual email to the participants
 - Face-to-face at a suitable meeting of the research participants.

Semi-structured and unstructured interviews

These took place throughout the relationship with the case study organisation and formed a significant part of the qualitative data gathered. The same general considerations were applied to these interviews as to the structured interviews.

Observation

Observation has been recognised as a valuable data collection method in a case study setting by a number of authors (Gillham, 2000; Jankowicz, 2000; Powell, 1997; Saunders *et al.*, 2000; Yin, 1994) and complements interviews as a valuable source of additional data. Such observation can take place on both an informal basis (such as during a tour of the business premises of the case study organisation) as well as on a formal basis (such as during a meeting at which the researcher is invited to attend without active participation).

This research method was chosen in addition to the interviews to add depth and variety to the data collected. Observation also allowed the researcher to identify possible additional artefacts and documents as part of the data collection activities. This observation included the ability to observe, for example, the use of story-related ideas in such areas as posters on display; use of screen-savers with story themes; collection of miscellaneous documentation, and the use of storyboards at various locations visited.

Documents and artefacts

The collection of documents and artefacts as part of the overall attempt to collect field data during an empirical research project, has also been recognised by a number of authors (Gillham, 2000; Jankowicz, 2000; Powell, 1997; Saunders *et al.*, 2000; Yin, 1994).

A number of artefacts and documentary sources were collected during the empirical data gathering activities. These included:

- Case study organisation corporate publications
- Case study organisation public web site
- Electronic mail
- Meeting agendas
- Minutes of meetings

- Presentation material
- Press clippings about the case study organisation
- Samples of storytelling materials.

Having presented the approach to data gathering, attention can now be turned to the data analysis approach used in this research project.

5.4.4.3 Data analysis and conclusions

Several authors (Hussey & Hussey, 1997; Leedy and Ormrod, 2001; Miles and Huberman, 1994; Patton, 2002; Yin, 1994) have expressed their opinion on how best to present and analyse qualitative data gathered as part of a phenomenological research project. Leedy and Ormrod (2001), in particular, provided guidance in the area of data analysis in a case study, which they stated typically involves these steps:

- “Organisation of details about the case. The facts are arranged in a logical order.
- Categorisation of data. Categories are identified that can help classify data into meaningful groups.
- Interpretation of single instances. Specific documents, occurrences, and other bits of data are examined for the specific meanings that they might have in relation to the case.
- Identification of patterns. The data and their interpretations are scrutinised for underlying themes and other patterns.
- Synthesis and generalisations. An overall portrait of the cases. Conclusions are drawn that may have implications beyond the specific case that has been studied,” (Leedy and Ormrod, 2001:150).

This approach was adopted in discussing the analysis methods used in the research project and will now be explored in more detail.

Organisation of data about the case

Both primary data (for example, responses to various types of interviews) and secondary data (for example, from internal publications and annual reports) provided a wealth of data which could be reduced through the process of selecting (through the judgment of the researcher), simplifying (using a variety of classification methods, for example, relating to the research instrument topics) and transforming the data (through a variety of techniques, for example, the transcription of digital recordings).

Categorisation of data

A number of categories were identified for the data. These included

- External business environment
- Business strategy and operations
- Knowledge management strategy and operations
- Knowledge sharing and storytelling activities.

In addition, detailed categorisation of the data was carried out in line with the subject areas identified in the maturity assessment for knowledge sharing and storytelling.

Interpretation of single instances

There were many individual documents, responses to interviews, and observations, which were examined for meaning in relation to the specific circumstances of the case.

Identification of patterns

The data gathered during the field research were examined for underlying themes and patterns in relation to knowledge sharing and the use of stories and storytelling as a practice for knowledge sharing. These patterns were interpreted within the context of the Kumba Resources operational locations and functions.

Synthesis and generalisations

The synthesis of the data findings and analysis was carried out and will be presented in Chapters 7 and 8 of this report.

5.5 Summary

This chapter has explained the various options available for the execution of the field research and the logic for the selection of the specific approach, strategy and methods applied in this research project.

In summary, the overall methodology is one based on a phenomenological philosophy. It combines non-empirical and empirical approaches; is subjective rather than objective (having a high involvement by the researcher); is deductive in terms of theory testing about the use of storytelling for knowledge sharing; uses mainly qualitative methods; employs the case study as the primary research strategy; takes a snapshot approach to the case setting; seeks to treat the case as one of an exploratory nature, and uses a combination of data sampling, collection and analysis methods.

The following chapter will present the empirical case data gathered during the fieldwork phase of this research project.

6 Data findings

6.1 Introduction

This chapter presents the data gathered during the empirical-work phase of the case study research. The facts of the case will be presented without formal analysis as this will be presented in the next chapter.

The chapter opens with a presentation of the profile of the case study organisation, Kumba Resources. This background material will give a context for the investigation into the case study organisation and the Continuous Improvement Community of Practice (CICOP) within Kumba Resources. In the next section of the chapter there is a focus on knowledge management at Kumba Resources, including the role that knowledge management plays in the organisation as a whole as well as the specific activities and role of the Kumba Resources Knowledge Management team. The following section reports the data findings from the investigation into the maturity assessment of knowledge sharing and the use of stories and storytelling in the CICOP. This is followed in the next section by the findings from the series of interviews and observations which took place after the structured maturity assessments of the use of stories and storytelling in the CICOP.

The chapter will conclude with a brief summary of the data findings and serve as an introduction to the analysis chapter, which follows.

6.2 Profile of the case study organisation

6.2.1 Establishment of Kumba Resources

Iscor Mining's first mine was established in 1932 to supply iron ore to the Pretoria Works steel plant, where the first steel was cast in 1934. Iscor Mining was renamed Kumba Resources Limited and was split from its former parent company, Iscor

Limited, in 2001 and was listed on the JSE Securities Exchange South Africa that same year (Kumba Resources, undated).

Headquartered in Pretoria, South Africa, Kumba Resources is focused around four key commodities: iron ore (accounting for about 60% of revenue), coal (21%), base metals (13%) and, the newest contributor, heavy minerals (4%), and has small interests in other areas, such as industrial minerals (Kumba Resources, undated).

In December 2003 Anglo American PLC, a company listed on the London Stock Exchange, together with its wholly owned subsidiary, Anglo South Africa Capital (Proprietary) Limited, increased its total shareholding in Kumba Resources from 35% to 66.62% of the issued share capital of Kumba Resources (Kumba Resources, undated).

6.2.2 Kumba Resources corporate vision and values

The Kumba Resources vision and value statements have been identified since the time of the company's first annual report in 2002 and have remained consistent ever since, appearing again in the annual reports for 2003 and 2004, on the Kumba Resources web site and in the internal publication, 'Breaking Ground'. Kumba Resources has also encompassed its vision and values into a stakeholder charter that was published in the annual reports for 2003 and 2004 as well as in 'Breaking Ground'. This charter reads as follows:

“Our vision:

Kumba Resources vision is to outperform the mining and mineral sector in creating value for all stakeholders through exceptional people and superior processes

Our values:

- Integrity
- Respect
- Accountability
- Fairness
- Caring,” (Kumba Resources, 2003b, 12:23).

The stakeholder charter goes on to say that: “these values provide the foundation for our behaviour and embrace our commitment to people, teamwork, a bias for action, continuous improvement and performance excellence. Building on these values as motivational values that energise its people are

- People make it happen
- Let's do it
- We do it together
- We do it better every time,” (Kumba Resources, 2003b, 12:23).

Kumba Resources is an organisation that enjoys significant diversity across the business in a number of ways. There is diversity of race (to be expected in a multi-racial South Africa); diversity of culture (also in line with the multi-cultural nature of the country), and diversity of language (not surprisingly, as Kumba Resources operates in a country with 11 official languages, with English, Afrikaans and a variety of indigenous African languages being spoken on a day-to-day basis in the business).

6.2.3 Kumba Resources business strategy

The Kumba Resources business strategy can be found clearly stated in the internal publication, ‘Breaking Ground’, as well as the company’s annual report 2004 as follows:

“Our Strategy

To grow and prosper, we will:

- Build a balanced portfolio of globally-competitive commodity businesses
- Attract and retain a highly-skilled and motivated workforce
- Promote innovation and employ appropriate technology
- Nurture a culture of continuous improvement and operational excellence
- Reward our shareholders with superior returns and capital growth,” (Kumba Resources, 2003b, 12:23).

The strategy statement as it appears in the annual report for 2004 goes on to say that, “a key strategic focus is to maintain and improve international competitiveness, adopt international best practices and optimise current operations. At an operational level, the bulk of Kumba Resources' capital equipment has been upgraded to standards comparable to the best in the world and technical processes are continuously reviewed to improve quality assurance and reduce costs” (Kumba Resources, 2004a:15).

To fulfil this strategy, “Kumba [Resources] focuses on those commodities and investments that offer above average growth and returns, while minimising risk by investing in a diversified portfolio of commodities and geographies,” and, as a result, has initiated a number of projects, “from iron ore in Australia and West Africa, coal in southern Africa and Australia, heavy minerals in Madagascar to base metals in China, Namibia and the Democratic Republic of Congo” (Kumba Resources, 2004a:15).

6.2.4 The Kumba Way¹

The Kumba Way was launched in November 2002 and embodies commitment, teamwork, a shared vision, seeking better ways to do things and encouraging the aspirations of all. It is important in understanding the culture. The Kumba Way is a process that, “aims to achieve world-class performance throughout the organisation to create value for all stakeholders and a strong competitive advantage by focusing on the Kumba Way themes” (Kumba Resources, 2004a:5), which are:

¹ This is the official name of the initiative, despite the fact that the company’s name is Kumba Resources.

- A common vision and set of values
- Governance processes
- Operational excellence

The Kumba Resources values (as listed in section 6.2.2), represented in the form of a flying ant analogy, demonstrate commitment, teamwork, a shared mindset, seeking better ways to do things and encouraging the aspirations of all. “The analogy reinforces how we will further realise our vision by developing a champion blueprint for harvesting our success stories, defining our best practices, learning from others and sharing, and sustaining these best practices” (Kumba Resources, 2002b:12(11)). A year later the consistency of this approach could be found in the following statements: “the process of lifelong learning is embedded in the Kumba Way. The Kumba Resources value ‘we do it together’ is lived by ‘we share knowledge and involve others in solving problems’ and ‘we strive to succeed beyond existing benchmarks and standards’” (Kumba Resources, 2003b, 12:5).

The specific initiatives of the Kumba Way, include

- People performance management
- Continuous improvement
- Target setting
- Capital and project management
- Mineral resource management
- Physical asset management (Kumba Resources, 2004a:5).

6.2.5 Kumba Resources operations overview

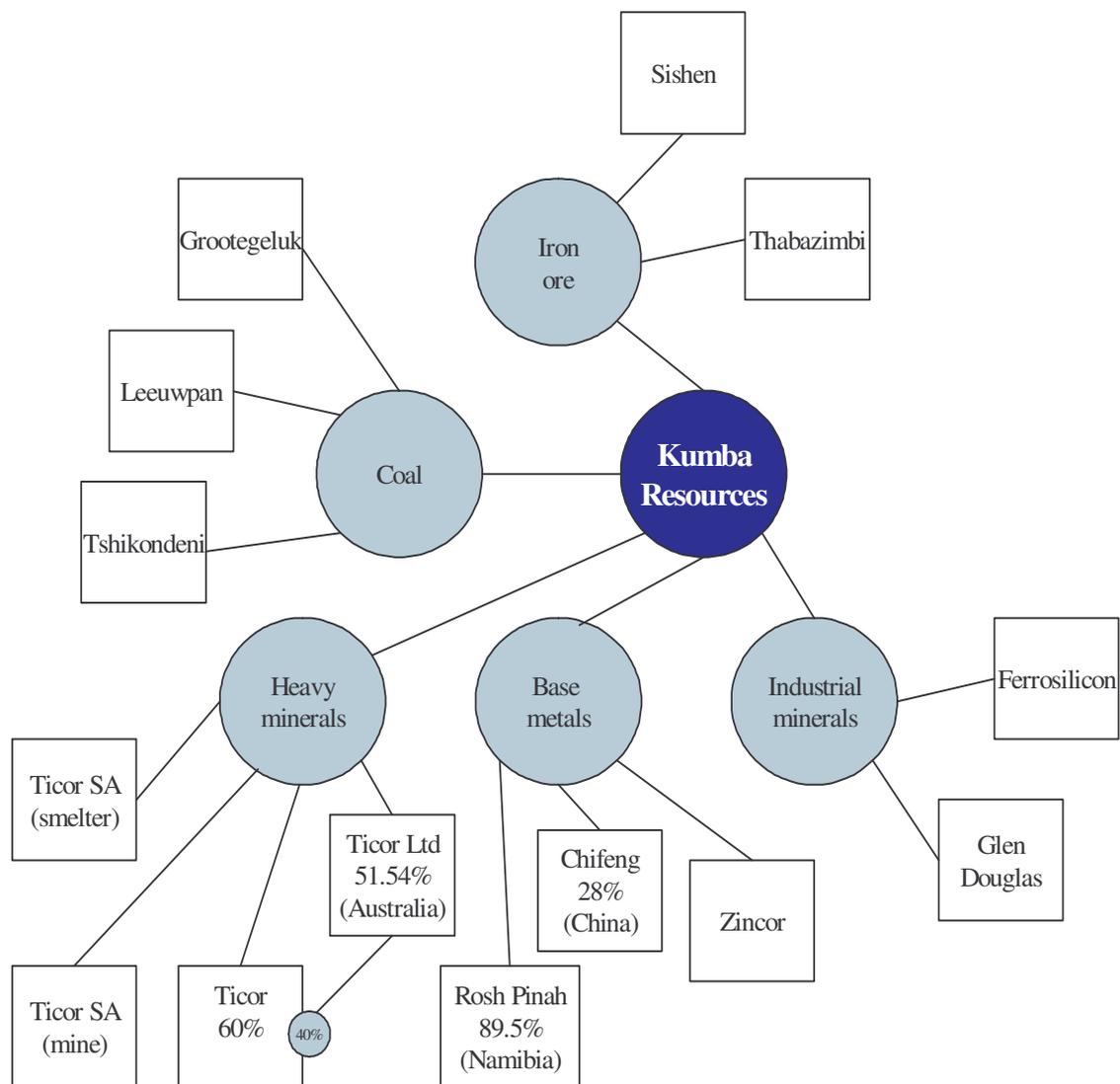


Figure 6.1 Kumba Resources group operational structure (Source: Kumba Resources, 2004a:1)

As at 30 June 2003, when the company was first identified as a potential partner for this case study research project, Kumba Resources had 10 574 permanent employees. Over the following two years, that number decreased until, by the end of 2004, there were just less than 9000. Table 6.1 shows the business areas, operations locations and types of products during the period from 1 January to 31 December 2004. Following

Table 6.1 is a brief overview of the key aspects of each element of the business operating sites.

Business area	Operations	Location by South African province unless otherwise stated	Products
Corporate services divisions	Various functions	Gauteng	Support services
Iron ore	Sishen mine	Northern Cape	Lump and fine ore
	Thabazimbi mine	Limpopo	Lump and fine ore
Coal	Grootegeluk mine	Limpopo	Thermal and semi-soft coking coal
	Leeuwpan mine	Mpumalanga	Thermal coal
	Tshikondeni mine	Limpopo	Coking coal
Base metals	Zincor refinery	Gauteng	Zinc metal and sulphuric acid
	Rosh Pinah mine	Namibia (outside SA)	Zinc and lead concentrate
	Chifeng	China (outside SA)	Zinc metal
Industrial minerals	Glen Douglas mine	Gauteng	Dolomite, aggregate and lime
	Ferrosilicon plant	Gauteng	Minerals processing plant
Heavy minerals	Ticor SA	KwaZulu-Natal	Various
	Ticor Limited	Australia (outside SA)	Various

**Table 6.1 Locations and product types
(Source: Kumba Resources, 2004a)**

6.2.5.1 Corporate Services Divisions

At the inception of Kumba Resources (and as reported in the annual report for 2002) the corporate services divisions were established to provide a set of services across the business. The structure of these divisions remained current in 2004 including:

- Kumba Resources technology
- Information management
- Continuous improvement
- Materials management
- Strategy and business development
- Human resources
- Group financial management (Kumba Resources, 2002a:40).

These operations are located at the corporate head office on the outskirts of Pretoria, and employ just over 700 people.

6.2.5.2 Iron Ore strategic business unit

The iron ore strategic business unit consists of two operations, Sishen iron ore mine and Thabazimbi iron ore mine.

Sishen iron ore mine was established in 1953 and employs 3318 people. Products of the mine are exported to ten countries. Sishen iron ore mine, one of the world's largest iron ore mines, is located in the country's Northern Cape Province. In 2003, Sishen completed a R700 million expansion programme to increase the mine's production capacity from 24 to 27 million tons per annum. Concurrent with the expansion of the operation, the rail and port infrastructure associated with the Sishen-Saldanha exports is also being upgraded. A further expansion of 10 million tons per year, known as the Sishen Expansion Project, is being investigated (Kumba Resources, 2004a).

Thabazimbi iron ore mine is one of the oldest in the group, having been in operation since 1932. As at September 2004, there were 889 permanent employees and 300 contractors on the mine. Thabazimbi mine, located in Limpopo Province, is a captive mine producing lump ore and fine ore, exclusively for Ispat-Iscor Limited's South African steel operations at the Vanderbijlpark Steel Plant, near Johannesburg, and the Newcastle steel plant in northern KwaZulu-Natal province (Kumba Resources, 2005a).

6.2.5.3 Coal strategic business unit

Kumba Resources coal strategic business unit is made up of three collieries: Grootegeluk, Tshikondeni and Leeuwpan.

The Grootegeluk coal mine in Limpopo province employs 2100 people and accounts for 90% of Kumba Resources coal total production. The majority (81%) of its production is in the form of power station coal and is supplied to the nearby Eskom Matimba power station.

Tshikondeni colliery, also in Limpopo province and situated close to the Zimbabwe border, employs 574 people and is one of the only South African large scale producers of hard coking coal, producing 437 000 tons in 2004, all of which is consumed by Ispat-Iscor works.

The Leeuwpan mine, located in Mpumalanga, some seventy five kilometres southeast of Pretoria (the location of Kumba Resources head office), employs 360 people, 42 from Kumba Resources, the remainder from a contracting company, Archer Mining, and produces direct reduction coal and coal for pulverised injection to meet the growing demand by local steel works. It also produces power station coal that is sold to Eskom for its municipal power stations, as well as to local industrial users (Kumba Resources, 2004a).

6.2.5.4 Base metals strategic business unit

Kumba Resources base metals strategic business unit consists of the Zincor refinery, Rosh Pinah mine and Chifeng zinc smelter (China).

Zincor is located in Springs, a town 50 kilometres east of Johannesburg. The Zincor refinery employs just over 600 people and produced 107 000 tons of zinc metal and 142 000 tons of sulphuric acid in 2004. It also processes all the zinc concentrate from the Rosh Pinah (Namibia) mine. Of its total zinc metal production, more than 80% is sold domestically and the export market consumes the balance, the bulk of which is

used in the galvanising industry both locally and abroad. Zincor markets all of its sulphuric acid to domestic industries.

Rosh Pinah zinc-lead mine, located in south-western Namibia, has been in existence since 1970 and is 89.5% owned by Kumba Resources, the balance being held by Namibian empowerment companies. Rosh Pinah employs 470 people and in 2004 the mine produced more than 119 000 tons of zinc concentrate (all of which was supplied to Zincor) and about 12 000 tons of lead concentrate, all of which was exported to foreign smelters, predominantly in Europe and Asia.

The Chifeng operation, located in China, produced 12 000 tons of zinc metal and 17 000 tons of sulphuric acid in 2004. Chifeng has completed an expansion project to increase zinc production to 50 000 tons per year and sulphuric acid to 90 000 tons per year. Chifeng sells all of its zinc and sulphuric acid to local Chinese customers. The number of employees is not stated in the Kumba Resources annual report 2004 (Kumba Resources, 2004a).

6.2.5.5 Industrial minerals strategic business unit

The industrial minerals strategic business unit consists of two operations, Glen Douglas mine and Ferrosilicon plant.

Situated at Henley-on-Klip near Vereeniging, south of Johannesburg, the Glen Douglas dolomite mine is one of the smallest of the Kumba Resources mining operations, employing just 49 Kumba Resources people, as well as a number of contractors. It is a conventional open-pit mine producing products comprising metallurgical dolomite (50%), aggregate (43%) and agricultural lime (7%). The dolomite is sold to Ispat-Isco's Vanderbijlpark and Newcastle Works and the aggregate and lime to a wide range of customers in South Africa's Gauteng and Free State provinces.

Kumba Resources Ferrosilicon was established in 1996, close to the current Kumba Resources head office, when then-parent Iscor secured a licence from Osprey, a UK company, to produce gas-atomised ferrosilicon powder. Kumba Resources

Ferrosilicon currently employs about 120 people. Production in 2004 was 6000 tons. Approximately 75% of the production is used by Sishen and Thabazimbi mines in the process of separating iron ore from the run of mine material. The remaining 25% of the plant's production is sold locally for the beneficiation of heavy metal oxide ores (Kumba Resources, 2004a).

6.2.5.6 Heavy minerals strategic business unit

The heavy minerals strategic business unit consists of two operations, Ticor South Africa (Kumba Resources has a 60% investment in Ticor SA), and Ticor Limited, Australia (Kumba Resources has a 51.5% investment in Ticor Ltd).

In 2002 Kumba Resources began commissioning the first of two furnaces at the smelter complex at Ticor South Africa, situated in Empangeni, northern KwaZulu-Natal. Ticor SA along with Ticor in Australia employs nearly 800 people. In 2004 it produced 258,000 tons of a variety of products including titanium dioxide feedstock, which is used as a pigment in paints, plastics and paper.

This operation, combined with its significant investment in the integrated Australian mineral sands producer, Ticor Limited (which produced 469,000 tons of output of various products in 2004) will make Kumba Resources the world's third largest producer of titanium dioxide feedstock (Kumba Resources, 2004a).

All of the South African-based business units of Kumba Resources listed in Table 6.1 (with the exception of the Ferrosilicon plant) participated in the research project through their membership of the Continuous Improvement Community of Practice (CICOP) which was established in a key area of the Kumba Resources operations (already mentioned in this chapter in section 6.2.2 under the stakeholder charter; in section 6.2.3 under the Kumba Resources strategy, and in section 6.2.4 under the Kumba Way). The CICOP will be discussed further in section 6.3.5.

6.2.6 Performance indicators at Kumba Resources

Kumba Resources reports its financial performance in line with its duties as a public listed company through its annual report as well as periodic (interim) updates. In addition, there are a number of other performance measures which are used internally in the business. Both the financial and other performance measures will now be reviewed.

6.2.6.1 Financial performance

The following are the key financial indicators as reported in the Kumba Resources annual report for the period 1 July 2003 to 31 December 2004, published in April 2005 (the latest available at the time of writing, with figures quoted in millions of South African Rands) (Kumba Resources, undated):

- Revenue: R12 599m, made up by
 - Iron Ore: R4 250m
 - Coal: R 1 878m
 - Base metals: R 812m
 - Heavy minerals: R1 662m
 - Industrial minerals: R 95m
 - Other: R 12m
- Net operating profit: R 1 855m
- Headline earnings: R1 0173m
- Headline earnings per share (18 months): 339 cents
- Total assets: R12 969m.

During 2003 and 2004 the Kumba Resources business had been under financial pressure, as a result of falling world commodity prices for certain of its products, as well as the strength of the South African Rand. As a result, an item appeared in the South African business press on 8 October 2004, commenting that, “in early August, Kumba Resources announced that it would seek to achieve sustained savings of R800

million in earnings before interest and tax terms. Yesterday Kumba Resources again said that its business improvement project running throughout the group, is on course to achieve in the R800 million improvement in net operating profit by December next year,” (Loss of 400 jobs to help Kumba drive down costs, 2004:4). This business improvement project had in fact started in late 2003, and by December 2004, the Kumba Resources chief executive was reported, in the Kumba Resources official internal publication ‘Breaking Ground’, as saying that, “Kumba Resources business improvement project (KBIP) has enjoyed tremendous support from all divisions, however, with our figures still well below the R800 million savings target we set for ourselves, in November last year, we must continue to pull together to further increase efficiencies across the company,” (Kumba Resources, 2004b, 12:3). This financial situation provided the backdrop against which this research was conducted.

6.2.6.2 Other performance indicators at Kumba Resources

A key strategic focus at Kumba Resources is to maintain and improve international competitiveness (and in the process, adopt international best practices and optimise current operations). An example of this approach is to be found on the Kumba Resources website, where it is claimed that at an operational level, “the bulk of Kumba Resources' capital equipment has been upgraded to standards comparable to the best in the world and technical processes are continuously reviewed to improve quality assurance and reduce costs... and [Kumba Resources] boasts a portfolio of world-class assets spanning three continents rich in mineral resources: Africa, Asia and Australia,” (Kumba Resources: undated).

In the sub-sections that follow the world-class performance model as outlined in Chapter 4 will be mapped to Kumba Resources.

a) Best practices

Numerous references can be found to the adoption of best practices operations across the business. These references include:

- A specialised knowledge base, the application of international best practices and the implementation of operational efficiencies, which have all contributed to the quest for low cost production (Kumba Resources, undated).
- “Much value will be accrued from sharing best practices across and beyond Kumba [Resources],” (Kumba Resources, 2002b, 6:8)
- “We know that we use best practice in many respects. But elsewhere we can improve. How we identify and share best practice is the key issue,” (Kumba Resources, 2003b, 3:4).
- “The successful implementation of best practice principles for people performance and talent management that result in a high performing organisation through high performing people is what we want to achieve,” (Kumba Resources, 2003b, 3:7)
- “The Kumba Way will be about identifying Kumba Resources' existing best practices, translating them into clear processes, and ensuring that these are implemented at all business units and corporate services departments” (Kumba Resources, 2003b, 3:7)
- “One of the benefits of being a young company is that we were able, from the outset, to create a contemporary company, one that considered global best practice” (Kumba Resources, 2004a:15)
- “We will further realise our vision by developing a blueprint for harvesting our success stories, defining our best practices, learning from others and sharing and sustaining these best practices” (Kumba Resources, 2002b, 12:11)
- In implementing the Kumba Way, existing processes were examined and surveys conducted and the results analysed for an accurate understanding of existing practices. “A study of best practices, internal and external, was conducted to identify shortcomings in current practices. The processes were implemented at pilot sites and were closely monitored reviewed and refined, where necessary, and implemented across the group. Both progress and processes will be continually measured...the Kumba Way is founded on identifying best practices throughout the group or externally and using these to realise our goal and practice of continuous improvement” (Kumba Resources, 2003a:50).

b) Benchmarking

Examples of the extent to which Kumba Resources use benchmarking are:

- “By strategically focusing on key businesses, the company has...benchmarked our operations against the world’s best to make them low cost and efficient facilities,” (Kumba Resources, 2002b, 6:8)
- “We strive to succeed beyond existing benchmarks and standards,” (Kumba Resources, 2003b, 12:5)
- “Kumba [Resources] decided to benchmark with companies that had been implementing knowledge management from the outset...an intensive three-week education programme was undertaken as strategy-development session, which took place towards the end of September 2003.” This programme involved visits to other companies, such as South African Breweries, Eskom (electricity utility), National Electricity Regulator, Onderstepoort (animal research centre and hospital) and Sasol (petrochemicals)² (Sandrock, 2004:online).

c) Standards

Standards play an important role in the life of Kumba Resources. Numerous ISO certifications in a number of fields have been achieved by a cross-section of the operating units. According to the company, (Kumba Resources, 2004a), as at 31 December 2004 these include:

- ISO 14001 (international standard for environmental management) certification: six out of ten business units have already obtained certification, with the remaining four locations planned for certification by December 2005.
- OHSAS 18001 (South African Occupational Health and Safety Standard): seven out of ten business units have already obtained certification, with the remaining three locations planned for certification by December 2005.

² This company has developed a maturity model for knowledge management.

- Sishen mine has been awarded ISO 9002 status since 1994 and ISO 17025 since November 2002
- Zincor plant has been awarded SABS ISO 9001 status since 2003.

d) Quality

The focus on quality at Kumba Resources can be identified from a number of sources, including the annual report, website, and a number of internal publications, including Breaking Ground and SHEQ ('Safety, Health, Environment and Quality Vibes' - a quarterly internal publication).

One of the Kumba Way initiatives is a focus on operational excellence and these are measured in the areas of safety (including number of fatalities, lost-day injury frequency rate), health (occupational diseases and hearing impairment), and environment (air quality; land, water and electricity use; waste generation and disposal and biodiversity management). These initiatives are intended to identify the responsibility to comply with legislation as well as to ensure that the issues of safety, health, environment and quality conform to the overall Kumba Resources business strategy.

In addition, the corporate services divisions (including the corporate head office function), are themselves subject to compliance with an internally developed excellence model.

A further example of the use of the multi-level capability maturity model is in the implementation of the staircase approach to safety, health, environment and quality (SHEQ) issues. It is clear that the SHEQ team uses these maturity staircases which are to be found everywhere throughout Kumba Resources.

Further evidence of the achievements of quality on a broad front was reported as follows (Kumba Resources, 2004a:11):

- Kumba Resources was ranked first in the mining sector in the independent ratings compiled by Empowerdex
- Kumba Resources was also first in its sector in the Deloitte/Financial Mail survey of ‘Best Company to work for’
- Kumba Resources was one of the inaugural companies included on the Johannesburg Stock Exchange socially responsible investment index.

It was also mentioned (Kumba Resources, 2004a:10) that the chief executive, Dr Con Fauconnier, was named ‘Boss of the Year ®’ and re-elected president of the Chamber of Mines, evidence of the quality of the management of the company.

e) Capability Maturity Models

The use of the Capability Maturity Model can be found in what is known inside the company as the ‘staircase approach’, which has been adopted by the CICOP, amongst other operations in Kumba Resources. One employee said that, “if you go into Kumba [Resources] now you will see staircases everywhere. Six years ago it was non-existent and it started spreading, that is a good idea of knowledge spreading... I think the idea of the staircase started taking off because now as I say you'll find it everywhere.” The staircase referred to is an example of the Capability Maturity Model rating scale (see Appendix 2 for an example of this scale).

6.3 Knowledge Management at Kumba Resources

There is documentary evidence available from ‘Breaking Ground’, dating back to 2002, of the company’s commitment to a knowledge management initiative. The importance of knowledge management in Kumba Resources was covered in three articles during 2002, while the importance of knowledge sharing also received extensive coverage from that time until mid-2003. It was at this time that Kumba Resources management decided to appoint a full-time knowledge management manager and to formalise the structure of the Kumba Resources knowledge management team subsequent to this appointment.

6.3.1 Role of knowledge management in the Kumba Resources business strategy

Numerous examples can be found of the role of knowledge management in the Kumba Resources business strategy, such as: “through our quest for performance excellence, we have achieved success with continuous improvement, capital and resource management and knowledge management at several business units. Much value will be accrued from sharing best practices across and beyond Kumba [Resources],” (Kumba Resources, 2002b, 6:8) and, “we wanted to promote a culture that encourages the sharing of knowledge and ideas, because this inspires innovation. Innovation should be the cornerstone of any modern company and Kumba [Resources] is no different. Through the knowledge share process, modern leadership and a culture of innovation can be achieved,” (Kumba Resources, 2002b, 6:9). In addition, there was the statement that:

“Knowledge management supports strategy and business development’s role in realising the growth objectives of Kumba Resources, as well as operational and strategic information requirements of other divisions of the company... the purpose of knowledge management is to provide an integrated knowledge solution of current and future business environments for managers who need contextual information for strategic and tactical decision-making,” (Kumba Resources, 2002b, 6:18).

A further example of the importance of knowledge management can be found in the statement that, “the company's employees are a major asset, and integrating and maintaining the company's intellectual capital is a priority for the company. The Professionals in Training symposium took place in October 2002 and was structured to serve as a platform to share knowledge, ideas and initiatives,” (Kumba Resources, 2002b, 12:22).

Some two years later, the importance of knowledge management was still being emphasised: “we had to prepare ourselves for an ever more challenging year regarding performance in safety, health, environment quality [SHEQ]. We can achieve this through continuous sharing of knowledge and experience, while ensuring

that we know what each party is adding to effective SHEQ management within the company,” (Kumba Resources, 2004c, 3:1). Further evidence of the role of knowledge management in the business strategy can be found in the following quotation:

“The objective of developing this learning culture is to integrate and align the various elements of a learning organisation within Kumba [Resources]. Once this objective has been achieved, the company will have a learning strategy that can be integrated at all levels. The end result will be a workforce that takes responsibility for its own learning, is knowledgeable about available learning opportunities and shares learning across boundaries,” (Kumba Resources, 2004b, 7:9).

6.3.2 Development of the knowledge management function at Kumba Resources

Within the Kumba Way there was an attempt to formalise knowledge management. As one member of the knowledge management team commented, “in the end that's where the knowledge management organisation was born from.” Another respondent said that, “knowledge sharing was part of the knowledge management drive which was part of the Kumba Way...but there was a delay of more than a year until the knowledge officer was appointed.” However, with the formal establishment of a knowledge management department and the appointment of its manager in September 2003, the focus on knowledge management at Kumba Resources increased.

Kumba Resources knowledge centre (staffed by the knowledge management team) has a vision to be the knowledge hub of Kumba Resources. Its mission is to link people with people, people with experience and knowledge, and people with information; its slogan is, “*your partner in knowledge and information,*” (Kumba Resources, 2005a:1).

6.3.3 Kumba Resources knowledge management team initiatives

In an article in an online publication (Sandrock, 2004), the Kumba Resources knowledge management team manager identified the following key initiatives:

- Holding an annual internal knowledge-management conference. The first of these conferences was also reported in 'Breaking Ground': "The first knowledge management conference...was attended by 120 delegates from Kumba [Resources] and partner companies with a focus on building and sustaining Communities of Practice... in Kumba Resources we have the collective knowledge of thousands of years, experience, and know-how. Sharing this knowledge can be difficult given the geographic expanse of our business, and this conference has been developed to help overcome the challenge," (Kumba Resources, 2004b, 4:26).
- Developing a support infrastructure for Communities of Practice. "This included launching new COPs, supporting the facilitators, measuring the health and success of individual communities and diagnosing and treating problems."
- Conducting an information and knowledge review. "The following questions were critical to this initiative: what key knowledge do we have within the business that we cannot afford to lose? What information do people need to have access to for effective decision making?"
- Building a knowledge map and populating an expert 'yellow pages'. "Kumba Resources' corporate colours are black and orange, so we chose the name 'orange pages' for our expert directory. The information gathered during the information review was invaluable when it came to populating the knowledge map and compiling the orange pages."
- Incorporating the corporate library and library services into the knowledge-management fabric. "A knowledge centre, which is to be the hub of knowledge and information management, has been formed. Identifying knowledge-rich documents and linking tacit and explicit knowledge sources."
- The development of a business-process approach to document management. "The knowledge management team has taken business-process ownership and holds workshops with those in the business who wish to implement a document-management system," (Sandrock, 2004:online).

According to the Kumba Resources knowledge management manager, her team's current group services in 2004 included:

- Orange pages
- Knowledge Centre
- Subscriptions
- Communities of practice
- Information services
- Knowledge management audits
- Physical knowledge map
- Physical library
- Virtual library
- Reading room
- Document management support
- Annual knowledge management conference
- Knowledge centre intranet sites (Sandrock, 2004).

Kumba Resources knowledge management team was made up of a total of eight people during 2004 as follows:

- Manager Knowledge Management
- Library manager
- Information specialist³
- Information officers⁴ (two)
- Information support⁵
- Library assistants (two) (Kumba Resources, 2005a).

³ Information specialist: supports Kumba Communities of Practice.

⁴ Information officer: carries out information searches, manages news clippings service, and provides knowledge database support.

⁵ Information support: provides training in knowledge management processes and tools; supports the Kumba document management system.

6.3.4 Importance of the Community of Practice to the Kumba Resources knowledge management approach

Of all the possible practices available to support its knowledge management strategy in the organisation, the most widely adopted, appears to be the Community of Practice (COP). Initiated in 2002, there are now over twenty COPs active in the company.

COPs already established (as at February 2005) include:

- Business governance
- Business process management
- Capital and project management
- Communication of crushing and milling
- Continuous improvement
- Environmental management
- Fatigue management
- Gravity separation and dense medium separation
- Jigging
- Mineral resource management
- Routine work management
- Safety, health and environment
- Supply chain management
- Sustainability
- Value in use (Kumba Resources, 2005b).

Communities of Practice planned but yet to be established (as at February 2005) include:

- Decision support
- Small project management
- High-performance culture
- Plant management (Kumba Resources, 2005b).

This research project had as its focus the use of storytelling for knowledge sharing in just one of these communities, the Kumba Resources Continuous Improvement Community of Practice (CICOP).

It has been reported that, “for a long time knowledge workers at one mine were sure that someone, somewhere else in the company must have tackled the same problem. But finding that person and being able to contact them easily was always the stumbling block. The formation of Communities of Practice has overcome this to a large extent, as knowledge workers have been able to meet others with similar expertise face to face,” and that, “as part of the corporate knowledge management drive within the company, the establishment of Communities of Practice is a critical component to enhance knowledge sharing,” (Sandrock, 2004:online).

The same article reported that to support the Communities of Practice, the knowledge management team provides the following:

- Promotion of the value of COPs to encourage new COPs and members of existing COPs, including articles in internal Kumba Resources publications, presentations and road shows
- Workshops to launch COPs
- Training of COP facilitators
- Support for leaders, facilitators and members of COPs in terms of their roles, community responsibilities, activities and success reporting
- Design of a shared repository in the document-management system. Kumba Resources has chosen Microsoft SharePoint to support its virtual communities.
- Assistance with community problem diagnosis and treatment
- Connecting different COPs at points of overlap and intersection. Members of the knowledge management team attend the COP meetings so that they are aware of the knowledge domains first hand, enabling any overlaps to be detected.
- A Kumba Resources COP Toolkit (developed in conjunction with Buckman Laboratories). The COP Toolkit is a physical toolbox, which contains a facilitator’s handbook, CDs with presentations, checklists, articles, icebreakers

and interaction tools for establishing values for the community (Sandrock, 2004).

In addition, it was reported that, due to, “the knowledge management team’s support of Communities of Practice, it is gaining popularity as more and more employees become fired up with the philosophy of sharing their knowledge.” It was also reported that, “a workshop held in July 2004, taught interested employees about Communities of Practice, explaining how they work and what the process is if anyone wants to join or form one. Candidates receive a handbook that explains the dynamics of a Community of Practice,” (Kumba Resources, 2004b, 7:28).

The knowledge management team recognises that the COP benefits both the organisation as a whole as well as the individuals who are members, and it was reported that, “the number of established COPs grows by the month with employees becoming increasingly excited by the idea of sharing knowledge and adding to the information resources that will propel Kumba Resources into the future,” (Kumba Resources, 2004b, 12:24).

6.3.5 Continuous Improvement Community of Practice (CICOP)

By mutual agreement between the researcher and the case study organisation sponsors, the CICOP was used as the focus of the research into the case study organisation. The CICOP was one of the first Kumba Resources communities established (in 2002) and the representation of members is as shown in Table 6.2 at the start of the empirical field research period for this case study in January 2004⁶:

⁶ Approval for the project was obtained in late 2003 and actual field work commenced in early 2004.

Business unit	CICOP membership⁷
Corporate Services Division	
CI function	Two members
Information management function	One member
Kumba Resources Technology	One member
Knowledge Management function (observer role)	Two members
Glen Douglas mine	Two members
Zincor refinery	Two members
Thabazimbi mine	Two members
Leeuwpan mine	Two members
Sishen mine	Two members
Tshikondeni mine	Two members
Rosh Pinah mine	One member
Grootegeluk mine	Two members

Table 6.2 Membership of the CICOP

The activities of the CICOP during the research period included:

- Business planning
- Operational improvement/facilitation
- Project optimisation
- Target setting and tracking
- Techno-economic analysis.

These activities were supported by the use of the continuous improvement capability assessment codebook that demonstrates the use of the capability maturity model.

Listed in this codebook (see Appendix 2) are the eight continuous improvement behaviours that give the CICOP its purpose and focus:

- Understanding continuous improvement
- Strategy deployment
- Leading continuous improvement
- Deployment and use

⁷ These are the numbers of permanent representatives: alternates may be appointed for meetings and others seconded for projects. In addition, as described in section 2.3.7, there are more than just permanent members: transactional members (supplying services to the CICOP) and passive members (receiving the benefits of work done by the CICOP) also exist but participate only on an ad hoc basis.

- Consistency in continuous improvement
- Cross-boundary, continuous improvement
- Sharing and capturing learning
- Continuous improvement on continuous improvement.

The achievement of these behaviours is measured by the use of a five level maturity model as described in the codebook. This approach is consistent with the section on world-class performance as presented earlier in this chapter (section 6.2.6.2 on capability maturity model deployment via the ‘staircase’ approach which uses the CMM five levels identified in Chapter 4, section 4.7.1), where it was identified that certain of the Kumba Resources operations have deployed the capability maturity model. In the case of the CICOP, this took the form of a performance staircase (see Appendix 2) for 2004, where the specific interests were:

- For the continuous improvement training Community of Practice to deliver their requirements within one year
- Systematically capture and share knowledge and lessons learned throughout the business
- To ensure a competent workforce that lives continuous improvement
- To coordinate continuous improvement on continuous improvement.

The community committed to meet on a quarterly basis throughout the year at a suitable Kumba Resources location, in addition to completing specific work items agreed at the meetings. Venues were selected on a rotation basis to allow for coverage of both the corporate services divisions’ functions (located on the outskirts of Pretoria) as well as at the mines and other Kumba Resources operational locations (located up to several hundred kilometres from Pretoria). The agenda for each meeting would vary but typically, as in the case of the meeting held at Glen Douglas mine, would include a presentation by the local CI team as part of their sharing of work practices with members of the CICOP.

Use was made of the Kumba Resources intranet and email (as well as informal meetings and telephone contact) to keep members informed of developments in

between formal meetings of the community. The members of the community would be, in any case, in regular touch with each other through the nature of the common interest they shared in the continuous improvement function.

This then was the composition, set of objectives, and modus operandi for the CICOP during 2004. It was this group, who would be the unit of assessment for the investigation into knowledge sharing and stories and storytelling in Kumba Resources.

6.4 Findings of the assessment of knowledge sharing and storytelling maturity in the CICOP

6.4.1 Knowledge sharing maturity in the CICOP

Fifteen individuals (all themselves permanent members of the CICOP, but not including *all of* the members of the CICOP) took part in the assessment of knowledge sharing and storytelling maturity assessments. The areas of Kumba Resources covered are shown in Figure 6.2.

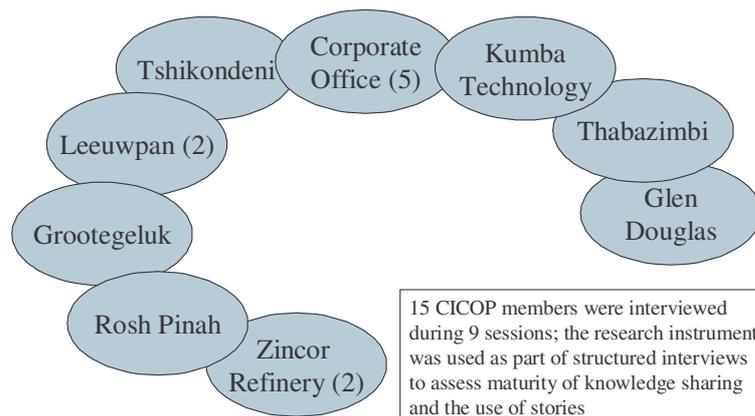


Figure 6.2 Participation in maturity assessment interviews

Table 6.3 shows the list of topics that were covered during the structured interview maturity assessment (see Appendix 1, Part Two, for a sample of the research instrument). These topics were derived as part of the non-empirical research. Indicated in the final column of this table are the overall maturity ratings for each question based on the responses to the structured interviews.

Structured interview topic number	Knowledge sharing maturity assessment topics	Overall maturity rating based on structured interviews
1	Ownership of knowledge sharing	1.00
2	Objectives of knowledge sharing	1.20
3	Tools & techniques for knowledge sharing	1.07
4	Training & education	0.60
5	Measures of knowledge sharing	0.53
6	Success stories of knowledge sharing	1.33
7	Benchmarking of knowledge sharing	0.60
8	Reward & recognition of knowledge sharing	0.27
9	Knowledge management strategy and role of knowledge sharing	1.00

Table 6.3 Structured interview topics (knowledge sharing)

This assessment was based on a six-point maturity rating scale for the nine questions interviewees were asked to answer (where zero indicated that activity was not being performed (see Appendix 1, Part Four, for the detailed description of the maturity rating scale).

6.4.2 Stories and storytelling maturity in the CICOP

Table 6.4 shows the list of topics that were covered during the structured interview maturity assessment for the use of storytelling as knowledge sharing practices in the CICOP (see Appendix 1, Part Three, for a sample of the research instrument). These topics, as for those in the assessment for knowledge sharing, were derived as part of the non-empirical research. As in the case of knowledge sharing in Table 6.3,

indicated in the final column of Table 6.4 are the overall maturity ratings for each question based on the responses to the structured interviews.

Structured interview topic number	Storytelling maturity assessment topics	Overall maturity rating based on structured interviews
1	Ownership of storytelling	0.13
2	Sponsorship of storytelling	0.00
3	Objectives of storytelling	0.27
4	Funding of storytelling	0.27
5	Tools & techniques of storytelling	0.73
6	Training and education for storytelling	0.07
7	Measures of storytelling	0.07
8	Success stories of storytelling	0.47
9	Benchmarking of storytelling	0.27
10	Reward & recognition of storytelling	0.13
11	Use of a storytelling model	0.33
12	Capture and reuse of stories	0.53
13	Catalogue of stories	0.13
14	Internal/external use of stories	0.73
15	Use of technology for storytelling	0.60
16	Where not to use stories	0.20
17	Storytelling COP	0.00
18	Story value rating scale	0.13

Table 6.4 Structured interview topics (storytelling)

As in the case of the knowledge sharing maturity assessment, this assessment was based on a six-point maturity rating scale for the nine questions interviewees were asked to answer where zero indicated that activity was not being performed (see Appendix 1, Part Four, for the detailed description of the maturity rating scale).

6.5 Findings on the use of storytelling for the sharing of knowledge in the CICOP at Kumba Resources

The findings contained in section 6.5 of this chapter are based on the semi-structured and unstructured interviews which took place once the maturity assessments of knowledge sharing and the use of stories and storytelling had been conducted with the members of the CICOP (see Table 6.2 for a list of the members). Also included are references to published material available from Kumba Resources (such as the in-house publication 'Breaking Ground', the Kumba Resources annual report and the Kumba Resources)⁸.

6.5.1 Corporate services divisions

6.5.1.1 Nature of storytelling

Over the period since 2002 the planned use of storytelling in the corporate services divisions had been based on two approaches: industrial theatre⁹ and a series of posters carrying a series of stories about corporate values. In addition, as identified in the maturity assessment interviews, there is ongoing use of oral storytelling as an informal means of communication.

6.5.1.2 Purpose of storytelling

The purpose of the storytelling in the corporate services divisions identified during the research project was as follows:

Kumba Resources Business Improvement Project (KBIP)

A storytelling initiative which impacted on the members of the CICOP was run by the knowledge management team (part of the corporate services divisions) who were

⁸ Where quotes are not directly referenced these have been sourced from interviewees and they have been used as anonymous quotes.

⁹ During the empirical research this was not a practice in current use and will therefore not be discussed further.

engaged in the ‘Kumba Resources Business Improvement Project (KBIP) Story Project’ carried out in conjunction with an external supplier in mid-2004. The objective of this project was to support the KBIP implementation. This project involved using the Cynefin methodology developed by Snowden (see section 3.4.1 and Kurtz and Snowden, 2003) and focused on collecting anecdotes for the construction of stories from across Kumba Resources’ operations, including from members of the CICOP. The project team gathered anecdotes on site at Zincor, Sishen, Grootegeluk, Thabazimbi, and in the Pretoria locations (which were also used to accommodate people from other smaller locations not visited by the project research team). This project was not complete by the end of 2004 (which marked the end of the empirical research period).

During the research project a number of other possible future uses of storytelling were identified by interviewees. These included:

Governance model

There is a requirement for the governance model used in Kumba Resources to be understood by stakeholders inside and outside the company. It has been identified that storytelling could be a powerful tool for future use to improve communications of the governance model. A suggested solution by one interviewee was, “if we build a proper storyboard it will explain the governance model...we need to build a storyboard around the Kumba [Resources] strategy and where the different business units fit in and have it represented pictorially...what we need to do is to overcome this ‘us and them’ and especially bringing in a shared services model, having an internal customer... pictures go a long way, one doesn't have to be illiterate to be able to understand [the value of] a picture [instead of text]... I think pictures say so much.”

Corporate brand and image

Kumba Resources has a strong brand and corporate image which so far has only seen the use of storytelling as a communication tool addressing the internal stakeholders. There was some discussion as to whether the storytelling tool could be used to take the corporate brand outside of the company. One member of the Kumba Way team commented on the extent to which the Kumba Way was not intended to interfere with the identity of an individual mine but recognised that there is a bigger “Kumba

[Resources] family”, a bigger sense of belonging, and that this needs to be communicated more completely: “we want to define what image or what stories we would like to project and link our corporate brand or corporate image with a storyboard.”

Performance management

It was identified that performance management of the corporate services divisions as a whole could be a valuable area for the use of storytelling, paralleling the work already being done in the operational (mine) units. For example, one interviewee identified that a presentation which lasted one and a half hours could have been done in 20 minutes by telling a few stories with a few pictures and that the whole presentation could have had much more impact.

Information technology policies

One member of the CICOP who was interviewed expressed an interest in being able to use stories as a powerful communication tool in helping to improve adherence to company policies in the information technology arena. He gave examples (anecdotes) of current stories about failure to adhere to policies and identified the potential to formalise these stories for wider use.

Project management

One of the interviewees, active in the project management field, identified an existing informal use of inter-personal storytelling amongst members of the project teams (working in areas such as Sishen) and the interviewee felt that there was much more potential to use storytelling as a knowledge sharing tool on a formal basis. An example was given of a feasibility study, which had taken 12 or 18 months on a project, and which could now be completed in eight months on a second project, through the sharing of the story of the achievement of the first project team (knowing what they had done, knowing how they had done it).

6.5.1.3 How storytelling is used

Posters

The Kumba Way communication included the use of a series of posters which carry a variety of themes associated with the Kumba Way values. The posters form a series of episodes in the story of the Kumba Way values, which each poster representing a different theme. The posters employ the device of a number of ant characters (who are not named on any of the posters and whose gender cannot be determined). An example set of the posters is found in Figure 6.3 (at the end of section 6.5.1). One interviewee pointed out that the reason that the ant story approach had been taken was “the fact that the guys in head office already were aware of the fact that storyboards are used at all the mines. I think that was just a natural way to progress; ‘let's just also communicate the Kumba Way through storyboards’.”

Screensavers and mouse-pads

The story of the Kumba Way ants is continued through the supply of screensavers and mouse pads depicting scenes from the posters, thus reinforcing the messages contained as part of the Kumba Way values communication. These items would only be distributed to members of the Kumba Resources workforce equipped with a PC, which excludes the majority of people in the mining operations, but includes members of the CICOP.

Writing skills for stories

One interviewee identified the difficulty of communicating through written stories, due to the challenge of expressing a story in writing. This challenge applies both to the literate, educated workers in corporate services divisions and even more so to the illiterate, less-educated employees at the operational units (mines) who would need significant help to capture their stories.

6.5.1.4 Benefits/value gained from storytelling

Multiple language support

The posters were available in the appropriate indigenous African language for the audience being addressed. This improved the potential for easy reception of the message being conveyed.

Visual impact high

It was reported that one of the benefits of using posters was that the visual component had a significant impact, as compared to other potential methods such as plain text. One interviewee commented that, “the impact of the web site or general email is zero,” when compared to the use of stories to carry the same message.

Easier to comprehend

Anecdotal evidence shows that it was generally easier to comprehend the key messages (know-what, know-why, know-how) because of the use of the storytelling approach. “When we communicate we should communicate in a story... by doing that you've achieved the goals of change management much easier. I think we can accelerate the understanding of what we want to create by this technique [storytelling].”

Improved recall

More than one interviewee reported having a clear memory of the storytelling events promoting a better understanding of the issues associated with the Kumba Way and HIV/AIDS. This was even after a gap of some two years since the presentation. After a brief story was told during one interview the response from the interviewee was, “because you've told us that story we'll never forget,” an example of the extent to which that interviewee believed their recall would be improved through the use of storytelling.

Trigger for creativity

More than one interviewee expressed enthusiasm for the use of stories as a spur to creativity. It was recognised that many of the people in Kumba Resources are of a

more technical disposition and that the use of stories and storytelling might, “trigger creativity of the people and bring them out of their cocoon and their strict way of thinking.”

Speed of learning

“I think we can accelerate the understanding of what we want to create by this technique [storytelling],” was the comment made by one individual who highlighted the extent to which the use of stories and storytelling can accelerate the ability to understand the message being communicated and as a result change behaviour.

Best practices transfer

It was found that there is a significant amount of movement of management level staff between the Kumba Resources mines (such as from Sishen to Zincor, from Grootegeluk to Thabazimbi) and between the mines and corporate services divisions. When these people get transferred from the one location to the other they take with them the knowledge acquired from their old location to the new location, thus providing a route for best practices transfer and that much of that transfer of knowledge happened through informal oral storytelling.

6.5.1.5 Other storytelling issues

Role of the strategic business unit in storytelling

Thus far, the corporate services divisions have rolled out the Kumba Way initiative across all of the strategic business units. At the operational level (the mines and Zincor processing plant) it has been only a local initiative to use storyboards to assist in storytelling. The strategic business unit level of management (iron ore, coal, base metals and so on) has played no coordination role in these storytelling initiatives.

Consistency of branding

More than one interviewee from the corporate services divisions commented on the extent to which the ant characters were (or were not) being integrated into the storyboards used on the mines. Until recently, few of the storyboards created on the mines had carried either the Kumba Resources corporate logo or the ant characters

(from the Kumba Way theme). This leaves open the question of alignment between the corporate divisions and the operating units.

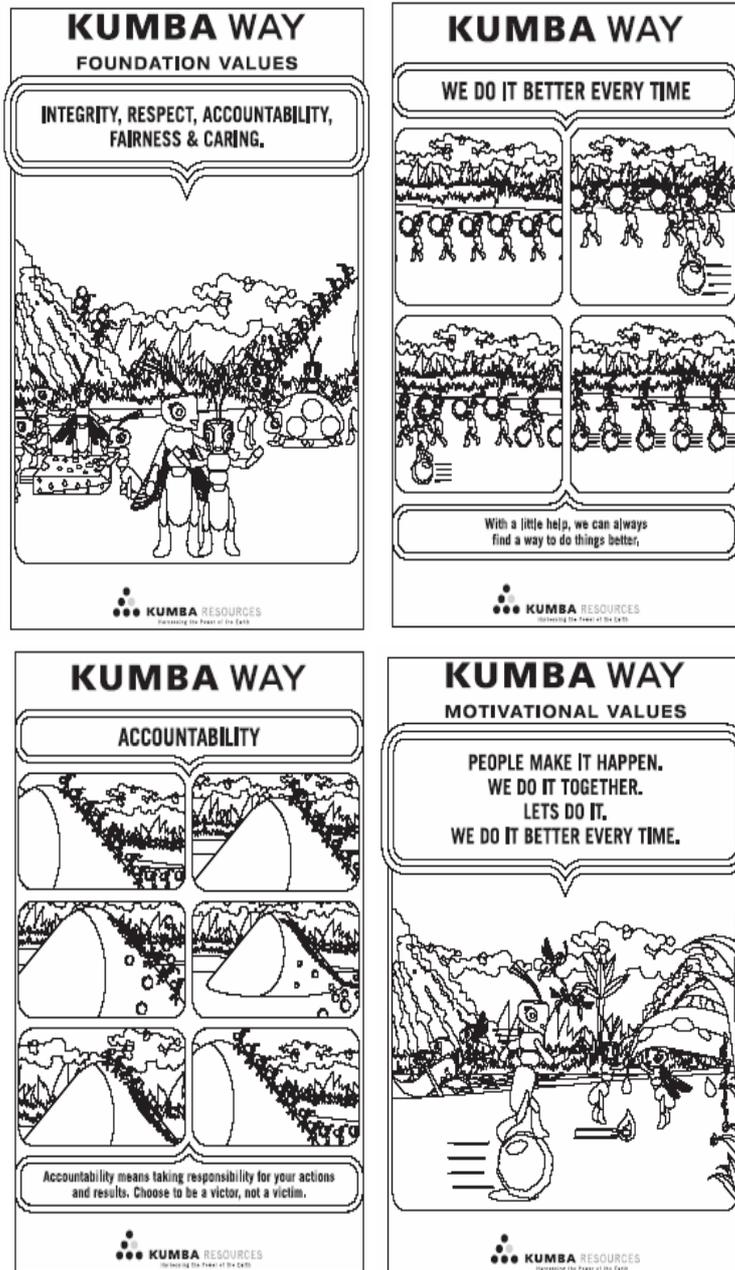


Figure 6.3 Kumba Way storyboards¹⁰

¹⁰ See Appendix 3 for a profile of these items.

6.5.2 Sishen iron ore mine

6.5.2.1 Nature of storytelling

As with all the Kumba Resources operational locations, the CICOP members (along with the rest of the employees) at the Sishen mine had been exposed to the Kumba Way posters and also their own unique mine storyboard. Sishen iron ore mine started to use stories to support knowledge sharing through the use of the storyboards in 2001.

6.5.2.2 Purpose of storytelling

Mine transformation process

Storytelling was used to create a sense of a journey, depicted on the first storyboard developed at the mine which use a series of characters based on the Bushmen (an indigenous tribal group well-known in the Northern Cape area). The three main areas to be communicated were collaboration, commitment and creativity.

Assisting with training

Mine management reported that using the storyboards provided significant assistance in meeting training objectives. The author of the Sishen storyboard explained in an article (Communicating the change, 2004:13) that, “every detail on the storyboard symbolised a business lesson.”

General use in meetings

The storyboards and stories about the scenes depicted on the storyboards were used during meetings to assist as a means of communication to help people to understand what they had to do, how they had to do it and know why they had to do it.

Building teamwork

Management reported significant assistance with their objectives in building teamwork through the use of the messages conveyed on the storyboards. The Communicating the change (2004:12) article also explained that, “the storyboard,

designed to explain the journey the mine had to embark upon, became a powerful communication tool. We used it to call out blockages to success, things like disrespect, deceit, lack of understanding and negligence.”

Making values better understood

The storyboards were used to make the values of Sishen mine more easily understood by the audience. Through the use of stories and storytelling they could identify with the indigenous bushman characters depicted on the storyboard and better understand as a result.

Improving productivity

The storyboards were used to increase productivity on the mine by helping individuals understand how they could better perform their jobs through more closely identifying with the business objectives and challenges.

6.5.2.3 How storytelling is used

Leveraging of management structures

The storytelling approach was used by senior management on the mine, who themselves made use of the storyboard and then ensured that the use of the practice was passed on down the management line until the story reached every one of the mine’s 3000 people. This included the members of the CICOP in the continuous improvement function.

Development and use of the original Sishen storyboard

The value of the mine’s own storyboard (see Figure 6.4, found at the end of section 6.5.2) was explained as, “a pathway moving across the picture to the right-hand side, symbolising the part of the mine’s journey moving towards competency, continuous improvement and creativity. On the extreme right-hand side of the storyboard, one finds a promised land,” (Communicating the change, 2004:12). On the storyboard this was depicted as a clean green and safe world, with plenty of housing, trees, animals and water. The section in the middle, the apparent wasteland represented a road the mine must travel. The storyboard started off with a foundation of values, and used

strategic business goals and operational strategies to build a bridge that would enable the mine to get to the Promised Land. Additional features included geese flying, which represented teamwork, because when they fly, they do so in formation. The leader, “reduces a lot of the strain on the rest of the geese, and when the leader tires, he simply falls back, and another one takes his place: in this way the geese can cover 72% more ground than any other way,” (Communicating the change, 2004:13). This gives a strong reference to the type of teamwork that was being encouraged through the use of the messages on the storyboard used at the mine.

According to the Sishen manager involved, the development and fine-tuning of the storyboard took a few months. Once it had been finalised, a presentation manual and package (that was flexible enough to convey the same message to the entire mine, and be pitched at different educational levels) was developed and in this way consistency in the message was achieved.

Copies of the storyboard were spread around the mine to serve as a constant reminder of the transformation the mine was embarking upon. It was referred to on a daily basis during training sessions and in meetings.

Whilst at many of the mines the owners of the storyboard initiative sit squarely in the continuous improvement area, at Sishen mine it was found that Human Resources owned the storyboard, so at this mine members of the CICOP were customers for (on the receiving end of) the storyboard, whereas at other locations they were the suppliers of the storyboard (such as that Grootegeluk or Thabazimbi).

Storyboard updated in 2004

Two generations of storyboard have been used at the mine. The original storyboard (see Figure 6.4) was updated (see Figure 6.5, found at the end of section 6.5.2) to keep it current in line with the business objectives and issues to be addressed in the original version of the storyboard. These changes included the move away from the bushman-like representations on the first storyboard to the more commonly used Smurf-like characters (compare Figure 6.4 and 6.5).

6.5.2.4 Benefits/value gained from storytelling

Reports of benefits gained from using storyboards at Sishen mine include the following:

Constant reminder

Because of the prominent display of the storyboard at multiple locations around the mine, there was a constant visual reminder of the story on the storyboard, encouraging informal gatherings to allow scenes depicted on the storyboard to be told on a peer-to-peer basis by employees at the mine.

Improved understanding

Management reported an improved understanding of the issues being communicated through the use of the storyboard. In particular, Sishen's workforce is 70% Tswana-speaking (an indigenous South African language) and in order to overcome this potential language barrier the artwork and storyboard depicting the mine's journey of transformation was created with a minimal use of text, along with storytellers using a language appropriate to the listener.

People feel involved

It was reported that the degree of involvement felt by the employees of the mine increased significantly once they had the opportunity to listen to and understand the messages contained in the story on the storyboard (to know what the objectives of the mine were, to know how they were going to be achieved, to know why they were going to be achieved). This involvement included structures such as the trade unions that were involved with management in development of the storyboard and ensured that the final product was capable of being delivered within the context of the individual's own culture and language.

Learning from past experience

By the time the storyboard practice was in use at Sishen, others had already been used within the wider Kumba Resources family. This allowed the benefit of learning from prior experience within the organisation. It was reported by one interviewee that

because a member of the Sishen management team was previously working at Kumba Resources' Tshikondeni mine, and there he had been exposed to the use of storyboards and that another member of the same Sishen management team was a former mine manager at the Kumba Resources Thabazimbi mine, they were both persuaded of the value of the format of storyboard used at their former locations in terms of also using them at Sishen (an example of best practice transfer). This was actually achieved by meetings between members of the management team at Sishen mine and at Kumba Resources' Leeuwpan mine (where the storyboard concept was first introduced to Kumba Resources, through Archer Mining, a major contractor at Leeuwpan).

6.5.2.5 Other storytelling issues

Cultural sensitivity issues

It was found that the Sishen management team had designed an essentially different style of storyboard to that in use at other Kumba Resources mines. They heard about the Leeuwpan storyboard (which used the 'Smurf' type characters, an example of this character type is in Figure 6.5) and decided to develop their own storyboard (replacing the 'Smurf' character set with a 'Bushman' character set, an example of this character type is in Figure 6.4) One of the interviewees said that, "we made the culture of the Northern Cape part of our storyboard and one of the ladies in the library decided she would use her art skills to draw up the storyboard and that's the way we communicated." But the feedback after the launch of the original storyboard was that the employees (in Sishen) did not want to be associated with Bushmen. The developer of the most widely used format of storyboard in Kumba Resources reported that from the beginning the intention was to create a sexless, raceless type character that was not going to cause harm or offence to anybody. He claimed that judging by the reaction of the Sishen employees the choice of the Bushmen characters for the original storyboard did not meet these criteria. The second generation of storyboard used at Sishen was therefore not based on the Bushman character but rather the neutral symbolic characters as shown in the graphic in Figure 6.5.

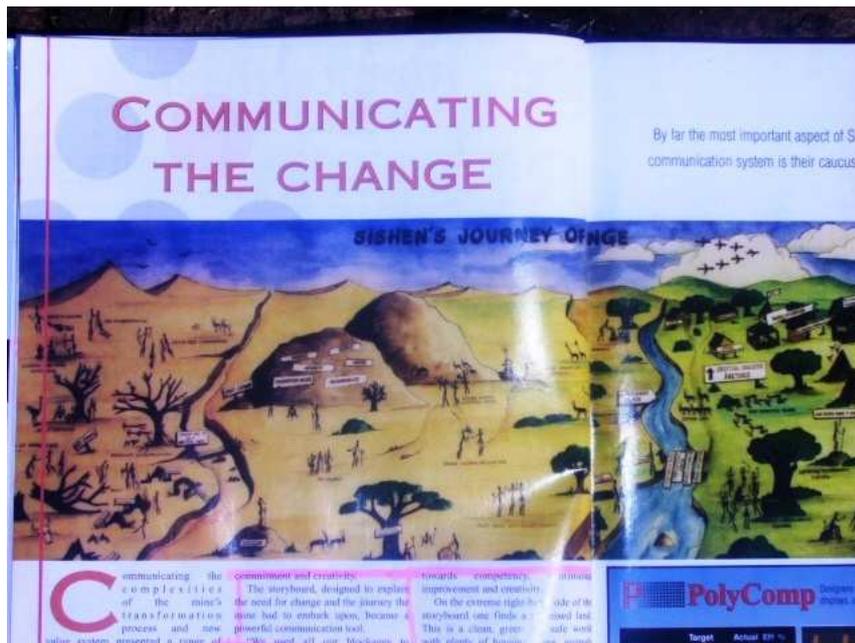


Figure 6.4 Sishen mine original storyboard
(Source: Communicating the change, 2004)

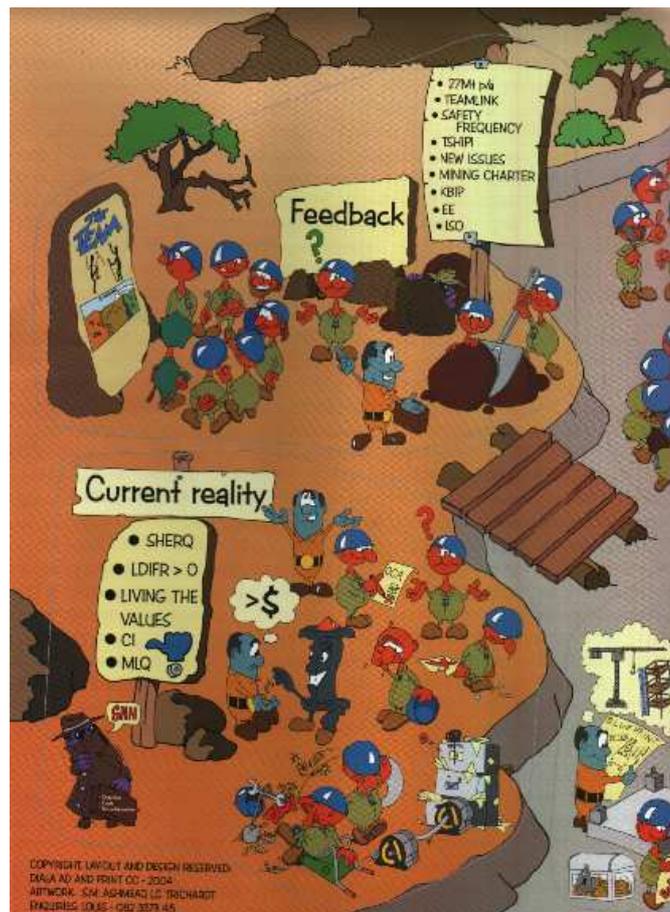


Figure 6.5 Sishen mine revised storyboard 2004¹¹

¹¹ See Appendix 3 for a profile of this item.

6.5.3 Thabazimbi iron ore mine

6.5.3.1 Nature of storytelling

Members of the CICOP were customers for the Kumba Way rollout using posters but were also suppliers of the storyboards used on the mine to help to communicate key messages from the continuous improvement team. In addition, a member of the CICOP circulated certain stories by the use of e-mail. Thabazimbi iron ore mine started to use stories to support knowledge sharing through the use of the storyboards in 2001.

6.5.3.2 Purpose of storytelling

The purpose of storytelling identified at this mine included the following:

Supporting the change process

This mine had been through some difficult times in the late 1990s and needed to implement a turnaround process. This included the requirement to help employees on the mine to know what needed to be done in order to achieve a turnaround, to know how to do it, and to know when the results had been achieved. “Use [of a] specially designed storyline [represented on the storyboard] was developed to foster understanding of the overall strategic process by all stakeholders,” (Kumba Resources, 2003b, 3:18).

Facilitating improved leadership

Management on the mine had a specific focus on improving their leadership skills and sought to use the storyboard and storytelling as a means to increase their visibility with their employees and to increase their ability to transfer their own explicit knowledge.

Generating action plans

Management on the mine reported using the storyboards to help to generate action plans for the future based on a clear understanding of the current situation, the business imperatives, and how to achieve them.

Continuous improvement

Specific mention was made of the use of the storyboard to help with the activities of the continuous improvement function at the mine. The goals of continuous improvement included improving operational efficiencies and reducing costs, both of which are highly dependent upon employees at the mine learning how to change the way that they operate. The storyboard was seen as a key tool to assist in this initiative.

Safety and health

Storytelling methods were used to help improve safety issues on the mine, as well as meeting targets in terms of the health of the individuals working on the mine. In this case, HIV/AIDS awareness issues were complimented by the use of the mine's storyboard.

Customer relations

One of the business objectives on the mine was to improve customer relations. This theme was built into the storyboard (know-what was needed) and how to achieve the improved performance in managing customers (know-how to do it).

Financial impact

The storyboard was used as a tool to help to improve an understanding of the financial performance of the mine. This included an appreciation (know-how) associated with operational efficiency and cost reduction, as well as the impact (know-what) of lost production because of whatever means (equipment breakdown, labour hours lost and so on).

Performance tracking

Members of the CICOP reported experience of seeing the storyboards used as a tool for communications in understanding the performance of the business unit. The

storyboard carried a sense of journey, and it was the progress on this journey that was used by the management team to measure their performance: “I know one of the departmental heads at Thabazimbi used this [the storyboard] to track, every time he had a session with them he said, ‘Guys, where's our department on this,’ so he used it as a tracking measurement.”

Improving teamwork

Improved teamwork was one of the key objectives of the turnaround at the mine when the storyboard was first introduced. Management wanted to ensure that through the storytelling mechanism and the graphical presentation afforded by the storyboard, they could help the employees understand how to improve teamwork (know-what and know-how).

6.5.3.3 How storytelling is used

Figure 6.6 (found at the end of section 6.5.3) is an example of the storyboard in use at this mine. It depicts elements of the strengths of the mine’s operations as well as the objectives which are part of the mine’s operations. The series of scenes depicted on the storyboard allow a story to be created around each scene with contributions from the audience as well as the storyboard designers: “the storyboard was created where people would identify themselves in the whole mine situation: from the desert, across the river to a greener new country, more prosperous, where we could all identify with the targets, of the costs and safety statistics. In the end of that storyline [the flow of the story depicted on the storyboard] there was a rainbow with a pail full of money or whatever and we all worked towards that rainbow.”

Storyboards are republished in line with the business cycle

The mine storyboard has been updated to reflect changes in the business cycle and the individually removable sections lend themselves to replacement as and when business requirements change, allowing the story to be dynamic in nature.

Local anecdotes are used to complement the storyboard

One interviewee specifically mentioned that local anecdotes are used to complement the storyboard both by the storyteller and by the people listening to the story.

Background theme as per mine setting

Care was taken in the design of the storyboard to ensure that the background theme reflected the setting of the mine (the geography of the area).

Multiple levels of management involved

The messages contained in the storyboard are rolled out through various levels of management, moving down from the senior through junior management until it reaches the operational level of people. “Once the management team has done it a few times for the departments they expect the departments to take over, at Thabazimbi that's how it works. The departmental head then has to take it to the next level. That next level guy has to sit in, listen, observe, he gets the leader's guide, he knows ‘listen, you are going to communicate this further, so you had better listen and see what's happening here’.”

Storyteller's guide developed

One interviewee explained that the job of the storyteller was made easier by the availability of a guide designed to assist in the telling of the story. This was used in a series of dry runs, with the assistance of experienced observers, as a way of training the storyteller.

Storyboards aligned to corporate Kumba Way values

Since 2002 care has been taking to ensure that the values reflected on the storyboard include those of the corporate Kumba Way values: “Thabazimbi has replaced its existing values on its storyboard with the Kumba [Resources] values,” (Kumba Resources, 2002b, 12:11). Interestingly this did not extend to the use of the Kumba Way theme character, the ant. “We initially used figures, a little Mannetjie¹², a character and we will carry on using the characters. I don't know how we are going to

¹² This was the term used by the interviewee. It means a little ‘character’ of no particular age, gender or race.

integrate with the ant of Kumba [Resources], later on probably; we'll get the ant into the story to see the integration [with the Kumba Way values].”

Additional graphics support

In addition to using the general mine storyboard, management supplemented this with monthly themes which were displayed on comic strips for communication of short-term issues.

Professional graphic artists used

Although the ideas for the contents of the storyboard came from the mine management (in particular members of the CICOP) the actual production of the storyboard was outsourced to a professional graphic artist, who became a transactional member of the CICOP.

Episodic telling of the story

The storyboard was designed in such a way that sections of the board could be removed or added individually (through the use of a Velcro backing). This allowed the use of the storyboard to happen in an episodic way, thus facilitating easy discussion of elements of the story without revealing the whole story ahead of time. “At Thabazimbi they have a facilitator and while he's telling them the story he takes each picture and puts it on.”

6.5.3.4 Benefits/value gained from storytelling

Positive attitude of the people

It was reported that there was a significant improvement in the attitude of people working on the mine once the storyboard was used to help them to understand what, how and why they had to change their behaviour.

People identify with the objectives presented

One interviewee reported that the people on the mine identified much more closely with the objectives being presented than from more traditional means of presentation.

“Our storyboard created lots of energy and commitment from the people; everyone could identify himself somewhere in the storyline.”

Creativity improved

Another benefit of the use of the storyboard was that people's creativity improved once they were asked to start thinking for themselves about how to interpret the story.

Better way to share success stories

It was found that success stories were far more easily communicated through the use of the storyboard medium. “Storytelling and the storyboard is a way to get the issues top of mind. That's why I'm going to use it [the storyboard] in safety... I've realised we don't get breakthroughs [in safety]. One of the reasons is we don't use enough of creative stories [to share success stories in the safety area].”

Integration of local and corporate themes

The storyboard made it easier to incorporate Kumba Resources corporate themes into a story setting with which the employees were already familiar. This was achieved by the integration of the Kumba Resources corporate values in 2002.

Improved teamwork

Because of the communal nature of the storytelling and use of the storyboard, it was found that teamwork among the people increased. “You can go there now [Thabazimbi] and really experience the positiveness of the people.”

Improved business performance

The following results were reported and attributed to the use of the storyboard (as a means to help people understand what they need to do, how they need to do it and why):

- Production levels have gone up over the last three years, output is stable, quality variances reduced
- Improvement in quality of product
- Significant decrease in injuries; improvement in safety

- Significant increase in the level of employee satisfaction with communication practices (Kumba Resources, 2005b, 3:18)

One interviewee reported that, “it is probably most correct to say that the successful implementation of this strategy led to a work environment and climate where it became possible for a large number of employees to better perform all aspects of their work, leading to improved organisational performance,” and that this could be attributed to the use of the storyboard approach.

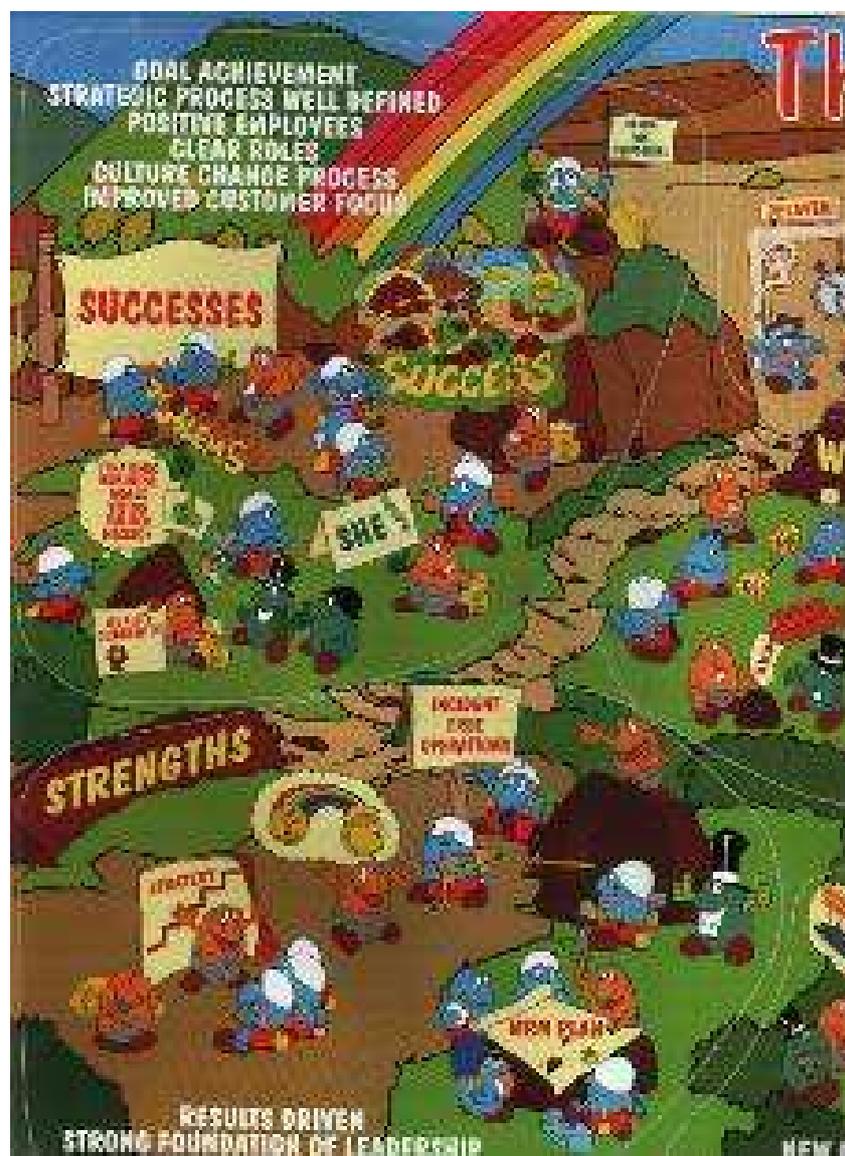


Figure 6.6 Thabazimbi mine storyboard¹³

¹³ See Appendix 3 for a profile of this item.

6.5.4 Grootegeluk coal mine

6.5.4.1 Nature of storytelling

Members of the CICOP at this mine also experienced storytelling through the Kumba Way posters but interestingly had also developed two different sets of storyboards for use on the mine, both of them originating within the continuous improvement area, but directed at different audiences (the first mine storyboard was implemented in 2002).

6.5.4.2 Purpose of storytelling

Create a visionary focus

The issues of vision, mission and strategic objectives were high on the list of priorities at the mine. This was mentioned in particular by one of the senior management team members as well as being depicted on the mine storyboard. “The story includes most of the key elements of the business planning process, including determining a vision, mission and strategic objectives in an easy to understand format that all employees can follow,” (Kumba Resources, 2002b, 12:5).

Share knowledge

Specific mention was made of a requirement to share knowledge of how business processes work: this included an understanding of knowing what the purpose of a vision and mission statement might be, and how they could be achieved.

Management communication tool

Management at the mine identified the storyboard as being a valuable communications tool. “We felt the line manager must take the responsibility to share with their own people... not all of them are artistic or drama people so you get a toned down version... but the fact that the leader is presenting it is still best.”

Understanding of the planning process

Another reason for the use of the storyboard at the mine was to help with an understanding of the planning process; what it was and why it was necessary.

Understanding business fundamentals

It was identified that some of the lower-level, less-educated members of staff struggled to understand even the basics about business and so the marula tree story was developed. “You don't just say ‘you've got a bonus, we made a profit’, there's a lot of questions around that and you can't explain that to them if they don't understand the meaning of shareholders, the growing of the business, job creation and all that stuff, so that is where the marula tree story all starts off.”

Improving teamwork

Teamwork was high on the list of priorities for the mine, as part of the core values, and was one of the reasons for using the storyboard approach in terms of improving teamwork: “so stories are there to assist, to let people understand each other...the same language gets through.”

Improving safe working conditions

Creating a safe working environment is a high priority on the mine, and this provided an additional reason to use the storyboard as a means to ensuring safer business practices.

Idea generation activities

One interviewee specifically mentioned the use of the storyboard assisting in idea generation activities.

6.5.4.3 How storytelling is used

Original mine storyboard

This mine started using storyboards as an aid to knowledge sharing through the CICOP in 2002 and the storyboard was updated the following year (see Figures 6.7

and 6.8 found at the end of section 6.5.4). Plans were underway during 2004 for a further update in 2005. The issues mentioned on these storyboards were:

- SWOT analysis (strengths; weaknesses; opportunities; threats); values; achievement (2002 version)
- Achievement of vision, values and the five thrusts (SHEQ; high-performance culture; client relationship management; Kumba Resources Economic Value Add; corporate citizenship) (2003 version).

Marula tree storyboard

Although there was already a storyboard in use (to communicate from the mine general management with the support of continuous improvement function to the rest of the mine), it was identified by the CICOP members that there was a gap in understanding of even some of the fundamental business principles. “The Grootegeluk [mine] storyboard is for a higher level. You can't use the same story for all the levels in the organisation, and this one [the marula tree story, see Figure 6.10, found at the end of section 6.5.4] is suitable for the very lowest level, to communicate this message.” The marula tree, in particular, was selected as the focus for the story because it is something, “that is very common in Ellisras so people could identify with the role of the tree in the story very easily.” The origin of the story was based on the need to communicate the annual performance bonus. When asked about the purpose of the marula tree story, one of the interviewees replied that, “it's about understanding what drives the business... sustainability, so its applicable to all of the mines... why are we here, what do we want to achieve and bringing it to the person himself... if the mine benefits, he benefits, it's the strategic link.” The story is told through the use of a series of twelve flip chart sized paper scenes which taken together make up the whole story.

By involving the employees in the development of the story

When it came to the development of the marula tree story this happened in conjunction with the people the story was intended to address. The person who developed the marula tree story “was very clever, he didn't think out the whole thing by himself, he got guys on the floor level to think about it.”

Professional graphic artists used

As with the other mines (with the exception of Sishen, who used an internal person), it was recognised that the services of a professional graphic artist would be required to produce a storyboard of the appropriate standard for the original mine storyboard.

Later, for the marula tree story, all the pictures were originally hand-drawn by the CI team, and when they saw that the marula tree story was working well, they developed a more durable, professionally produced set of posters (through the same graphic artist as is used for the main mine storyboard).

Written storytellers guide

Facilitators telling both the main mine story and the marula tree story have access to a written storyteller's guide. This had been developed to assist new storytellers in improving their understanding of how to tell the story, as well as ensuring consistency across the different number of storytellers used.

Dedicated storyteller as well as line managers as storytellers

The frequency with which the storyboard approach is used at this mine has prompted the local management to consider the appointment of a dedicated full-time storyteller equipped with the appropriate language skills (capable of speaking English, Afrikaans, Tswana), to communicate with a culturally diverse audience.

Size of group of listeners

When asked about the size of the group listening to the story, the response was, "we would usually be 20 to 25 to 30 people," and a further comment was added that, "it depends on certain departments, I've had more like between 10 and 15 people...how we base it is on when we can get them together and the size they are able to put together...usually because it's shifts that's how we end up with 20 to 25 people."

Location of a group of listeners

The location is in a natural setting that, "we try to make it in the conference area but for the shift workers we usually do it in their tea room, anywhere where we have enough space to put up the charts and get everybody together." This applies for both

the main mine story and marula tree story. See Figure 6.9 (found at the end of section 6.5.4) for an example of a storyboard on display in an office on the mine.

6.5.4.4 Benefits/value gained from storytelling

Change in employee performance

It was reported that there was a noticeable change in the performance of employees who have been exposed to both types (Grootegeluk mine and marula tree) of storyboard as a knowledge-sharing tool. These employees demonstrated a clearer understanding of what they needed to do, and how they needed to do it, which they were able to translate into improved performance, resulting in an overall increase in performance for the mine.

Learning improved

It was reported that employees exposed to the storyboards created by the CICOP significantly improved their understanding of a number of the issues involved in the life of the mine. “Grootegeluk employees are learning about strategic process and business principles from the unlikeliest of sources: the marula tree. The business unit’s continuous improvement team created a story centred on a group of unemployed people who use the only tree in their area to start a thriving business,” (Kumba Resources, 2002b, 12:5).

Ease of use

Since both types (Grootegeluk mine and marula tree) of storyboard are largely graphical in nature, it is a suitable vehicle to reach those who are not literate. “I think it’s the easiest way to reach everybody, for me storytelling is the best vehicle to use...to people, for instance, who can't read or write...it comes across.”

Assists with Best Practices transfer

Because the storyboard as a tool is becoming widely used within Kumba Resources, it is becoming easier to transfer best practice through a commonly understood and familiar tool. One of the interviews that took place at the Grootegeluk mine was with a senior member of the management team (and peripheral member of the CICOP), a

person with a great deal of experience within the company and who had seen the use of storyboards at the Thabazimbi mine and assisted in bringing the use of the storyboard to this mine.

Clearer communication

The marula tree story was developed as a simplified version of the mine storyboard, to assist in understanding just a few key concepts about how a business works.

Deeper understanding

Both types (Grootegeluk mine and marula tree) of storyboard were found to achieve a deeper understanding in the audience of the knowledge being shared. “When you are standing in front of a group of people and you see those workers, sometimes they come in there and they think, ‘oh God, this is another thing coming from the top and I’m not interested in it,’ but as you start speaking you see lights going on and with the type of questions that they ask you afterwards, now they start making the link of what our vision is... and they start talking about starting their own businesses and things like that so you can see now they’re starting to get an understanding... we are talking to the lower level people, workers and operators and stuff and the type of questions that you get show that they are understanding the concepts...my guys even understand EVA¹⁴ now.”

More entertaining learning tool

The storyboard tool was proving to be much more engaging than other more traditional means of communication (such as a PowerPoint presentation): “it’s energising, it’s fun.”

Creating buy-in

One interviewee was most enthusiastic about the benefits of using a consistent story to create buy-in to the achievement of objectives for the mine: “people see themselves in the story.”

¹⁴ EVA is an abbreviation for Economic Value Added, a term used in measuring the performance of an organisation.

Receiving a common message

One interviewee said one of the strengths of the storyboard approach is that a consistent message can be put across, regardless who is telling the story, through the use of the story training materials and storyteller guide.

6.5.4.5 Other storytelling issues

Moving the story outside of the mine

In relation to sharing the marula tree story with other Kumba Resources locations, there was a concern that other Kumba Resources locations may not accept the story. “I think there exists a sort of competition between the centres [mines]. I don't think they want to use the story because, ‘hey, look this is Grootegeluk's story,’ they would rather use their own.” A suggested solution was for the story of the marula tree to be successful at other locations was that it should be, “sponsored by Kumba [Resources] head office.”

Role of the Community of Practice

An alternative suggestion about how to spread the marula tree story to other Kumba Resources mines involved the role of the CICOP. “At a COP something like this should come up ... those guys there should drive it, it should not be the head office people. We have a lot of head office proposals and we have seen how that works, people just feel like it is being forced on them, you want it to come out of the COP where they say ‘look Grootegeluk is doing this and now let's tailor it for us’, I think that would work a lot better.”

Role of the knowledge management team

A third alternative that was discussed about how to distribute the marula tree story involved the set-up of a task group with the help of the knowledge management team to tailor the story to the other mines. One comment was that “it would go a lot faster” through the knowledge management team than through any other mechanism.

Measurement of benefits

It was recognised that measuring the benefits of using storyboards and stories was not easy. One interviewee did not express any suggested approach about how to measure the benefits but seemed clear that the benefits exist: “we had a very big debate about how to measure it, it's a difficult thing to measure, to go out to all those people and ask them, but what I can say is that, from my personal experience, it works.”

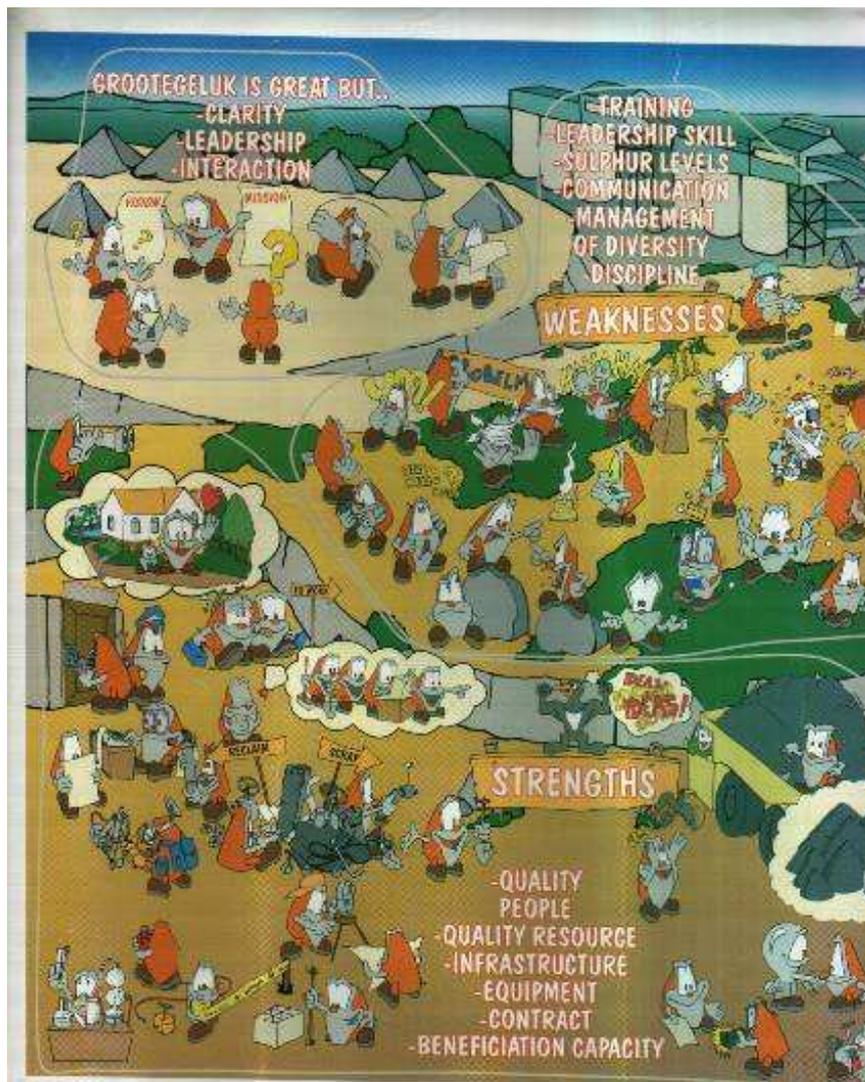


Figure 6.7 Grootegeluk mine storyboard¹⁵
(current 2002)

¹⁵ See Appendix 3 for a profile of this item.

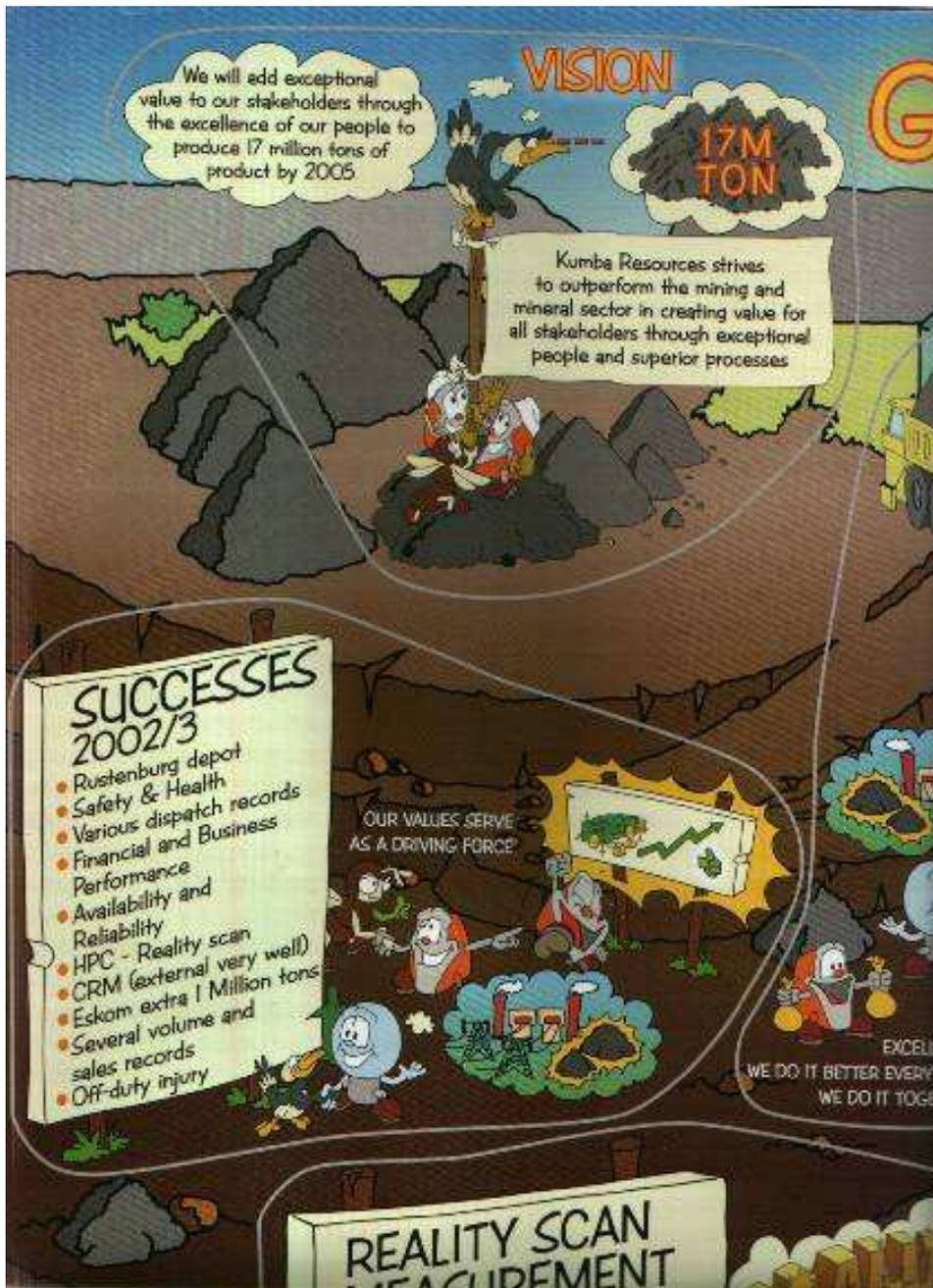


Figure 6.8 Grootegeluk mine storyboard¹⁶
(current 2003 to 2004)

¹⁶ See Appendix 3 for a profile of this item.



Figure 6.9 Grootegeluk mine storyboard



Figure 6.10 Grootegeluk mine marula tree storyteller and storyboard posters¹⁷

¹⁷ See Appendix 3 for a profile of the marula tree story posters.

6.5.5 Leeuwan coal mine

6.5.5.1 Nature of storytelling

As with other locations the CICOP members at this mine had been customers for the storytelling activities of the corporate services division in the rollout of the Kumba Way and HIV/AIDS projects. In addition Leeuwan mine was the first location in the Kumba Resources group to be using a formal, planned, storytelling approach (since 1998), but interestingly not specifically in the interests of the permanent employee population on the mine. The storyboards were deployed at the contracting company at this mine, Archer Mining (who provide over 90% of the mine's workforce), although those activities had full visibility to the continuous improvement function members at the mine (this predated by several years the foundation of the CICOP). As Kumba Resources management closely identify with their contractors, and the continuous improvement function at the mine is responsible for performance improvement of the contractors employed, the assessment of the use of the storyboard as a knowledge sharing tool at Archer Mining will be included in this research.

6.5.5.2 Purpose of storytelling

Development of a future vision

There was a requirement to develop a future vision to ensure alignment with the development of the overall Kumba Resources business. The overall approach was to help through the use of the storyboard to identify the current situation, the desired future state, and how that gap would be closed.

As part of the initiation process

Storytelling and the use of the storyboard applied to the initiation (induction) process, at a time when employees are being recruited. The use of the storyboard was intended to allow them to be quickly integrated into the team.

As part of reorientation process

Once employees returned to the mine after a period of leave the storyboard is used once again to reiterate the key business objectives.

6.5.5.3 How storytelling is used

Used in small groups

The storytelling on the mine takes place in relatively small groups. “The storyboard was used to communicate with small groups of between eight and ten people.”

Careful selection of story themes and symbols

It was recognised that a number of the employees who would be listening to the story have a different cultural and experience base compared to other employees in Kumba Resources. It was therefore important to use symbols appropriate to their environment (few, for example, would have experience of flying, so that would not make a suitable symbolic reference). Interviewees commented that in seeking a relevant symbol, storytellers should: “find stories they can relate to, use cows or whatever” or “if you want something universal a mealie [corn cob] could work.”

Senior management dress up as chiefs

Not content to merely tell the story, members of the senior management of Archer Mining at Leeuwan mine actually put on fancy dress costume, dressing up as Native American Indian chiefs, a pun on ‘archer’, adding additional creativity to the way in which the storyboard is used.

Music used to enhance the message

An additional innovation was the use of music to accompany the use of the storyboard. Where possible, specially selected lyrics designed to tie into the theme of the message on the storyboard. This had the effect of creating a vibrant, involving experience.

6.5.5.4 Benefits/value gained from storytelling

Meaningful

It was recognised that the use of storyboards presented a means of communication that carried much richer meaning than other alternatives (such as written communications and traditional management presentations).

No need for literacy

The storytelling mode is associated with eliminating the need for literacy, an important consideration given the relatively low levels of education in the workforce: “with English as a second language, and among who levels of illiteracy were high.”

Cost-effective

The use of the storyboard approach was found to be particularly cost-effective when compared with another alternative (professional story script writing) that had been evaluated at this mine.

6.5.5.5 Other storytelling issues

Benefit not actually measured

There was no evidence that any formal approach to measure the success of the storyboard had taken place at this mine, although management in the CICOP appeared convinced that the storyboard approach was a successful one (based on informal and anecdotal feedback).

Geographical dispersion an obstacle to best practices transfer

The geographical dispersal of Kumba Resources’ operations was identified by one interviewee as a possible impediment to the easy sharing of ideas. It was not so much the physical distance as the cultural, environmental and language issues associated with the different regions that could mitigate against ideas moving from one location to another.

6.5.6 Tshikondeni coal mine

6.5.6.1 Nature of storytelling

As with the other locations, CICOP members here had experience with the Kumba Way and implemented their first storyboard at the same time as the Grootegeluk and Thabazimbi mines in 2002.

6.5.6.2 Purpose of storytelling

Kumba Way values

The members of this mine also participated in the countrywide rollout of the Kumba Way initiative.

Improved communications

The use of the local mine storyboard was seen as a key element in improved communications across the mine. “The Tshikondeni storyline course was implemented in April 2002, with the aim of pooling employees’ ideas on teamwork, communication and team spirit,” (Kumba Resources, 2002b, 6:13).

Continuous improvement culture

One of the key objectives of the storyboard that was introduced in 2002 was, “the development of a culture of continuous improvement... at the mine,” (Kumba Resources, 2002b, 6:13).

Back to basics

This focus was one of the additional priorities on the mine in terms of ensuring that the business fundamentals were in place, thus allowing improved performance to be achieved from a solid base. “A storyline was used describing where the mine was going and how it planned to get there, spelling out everyone's role in the journey, where the themes of back to basics and teamwork were a focus for boosting production targets,” (Kumba Resources, 2002b, 6:13).

Teamwork

There was an emphasis on the importance of improving teamwork across the mine. “The Tshikondeni storyline course was implemented in April 2002, with the aim of pooling employees’ ideas on teamwork, communication and team spirit,” (Kumba Resources, 2002b, 6:13)¹⁸.

Increased production

It was believed that the messages containing the storyboard and the telling of the story depicted would result in increased production on the mine. “A storyline was used describing where the mine was going and how it planned to get there, spelling out everyone's role of the journey, where the themes of back to basics and teamwork were a focus for boosting production targets,” (Kumba Resources, 2002b, 6:13).

Safety concerns

One of the key concerns at an operational coal mine such as Tshikondeni, and it was believed that the use storytelling with the storyboard tool would assist in achieving the mine’s safety objectives.

6.5.6.3 How storytelling is used

Leaders guide translated into Venda

The mine storyboard was produced in English, but to assist in training the local storytellers, the graphic artist who was contracted to produce the storyboard (serving as a transactional member of the CICOP) reported that, “the manual we sent with it was translated into Venda.” This aspect proved to be a newsworthy approach: “[the message] was reinforced by presenting the message in English and Venda, and using a storyboard to highlight the Kumba [Resources] values,” (Kumba Resources, 2002b, 12:11).

¹⁸ Quotes are repeated where more than one concept has been mentioned and is listed separately.

Bicycle campaign

It was reported that the issue of safety on the mine was addressed using the analogy of safe use of a bicycle (around which a story was built), drawing parallels with safety practices at the mine. “I can use a brilliant example that happened to Tshikondeni I think it was a month or two ago, they identified that people are not proactively using safety...they actually made a campaign called the bicycle campaign.”

Specific training in use of storyboard

Specific training was offered in the use of the storyboard approach. “The Tshikondeni storyline course was implemented in April 2002,” (Kumba Resources, 2002b, 6:13).

6.5.6.4 Benefits/value gained from storytelling

Improved teamwork

When asked about the effectiveness of the use of the storyboard as a communication tool for knowledge sharing, it was found that at Tshikondeni, “people only started talking to each other once they had the medium [the storyboard] to help their discussion,” and that previously whilst they were polarised “in their own little beehives,” there was limited sharing of information: “everybody was living on their own islands.” This situation changed once they started to use the storyboard.

Cross cultural boundaries

The province of Limpopo in which Tshikondeni is located is an area where both English and Venda are spoken. The delivery of the storyboard story in Venda as well as English helped to address this localisation requirement.

Involvement of the workforce

It was also reported that one of the good things that came out from the storyboard usage is that the ownership of the story coming from the workforce began to be seen, “as they were not just being told the story, but also participating in the story.” This had the benefit of increased enthusiasm for the messages being told through the stories.

Improved performance

The storyboard approach has been in continuous use since 2002, where “the development of a culture of continuous improvement had begun to pay dividends for Tshikondeni and all the employees who work at the mine” (Kumba Resources, 2002b, 6:13).

6.5.6.5 Other storytelling issues

Sharing of practices across Kumba Resources

The idea of using a storyboard to assist in knowledge sharing was picked up from Thabazimbi and Grootegeluk, two of Kumba Resources operations most closely located to Tshikondeni mine, and whose continuous improvement team were also parts of the CICOP.

6.5.7 Rosh Pinah zinc mine

The CICOP member at this mine did take part in the maturity assessment interview (participating in both the structured and semi-structured parts of the interview). However, due to the geographical remoteness of the location (this mine is located in southern Namibia), it was not possible to visit the mine during the remainder of the research project, and there was limited participation by the CICOP representative from this mine at the various other discussions (such as at CICOP meetings) and interviews that took place during this project.

6.5.7.1 Nature of storytelling

Although it was also involved in the Kumba Way rollout, the use of the storyboard approach in a similar way to other mines (such as Sishen and Grootegeluk) had not been executed by the end of 2004. This situation was under review during 2004 and by August of 2004 the possibility of using a storyboard was under development and this would possibly be launched during 2005. There was no other evidence from the

semi-structured interview that any other form of planned approach to storytelling was in place at the mine.

6.5.7.2 Purpose of storytelling

There was no evidence of any current activity in terms of the planned use of stories for knowledge sharing at the mine.

6.5.7.3 How storytelling is used

No detailed investigation took place at this mine into the use of storytelling methods as the evidence from the maturity assessment interviews and semi-structured interview that followed was that there was no planned use of storytelling at the mine during 2004.

6.5.7.4 Benefits/value gained from storytelling

This issue did not arise, as stories and storytelling were not in use at the mine during the empirical research project.

6.5.8 Zincor refinery

6.5.8.1 Nature of storytelling

The employee base at Zincor refinery also participated in the 2002 and 2003 Kumba Way posters rollouts, and in addition management at the refinery were responsible for the development of two types of storyboards in use during 2004. Both of these types of storyboard involved the local CICOP members.

6.5.8.2 Purpose of storytelling

Zincor corporate storyboard themes

The Zincor refinery storyboard strongly resembles the type of storyboard in use at a number of other Kumba Resources locations (Thabazimbi, Grootegeluk, Tshikondeni), not surprisingly as the same graphic artist was used for all of these storyboards. The storytelling themes at Zincor illustrated on the storyboard were: Kumba Resources and Zincor visions; move to current reality; strategy; internal quality; satisfied employees; operational excellence; (creating) external value; satisfied and loyal customers; foundational and motivational values, and future intent.

Zimisele storyboard themes

The Zincor CI management team (including members of the CICOP) decided to initiate its own business improvement project, in order to remain competitive, sometime before the corporate-wide KBIP project was initiated. Zincor management instituted a business improvement project, at a board meeting early in 2003, called Zimisele (the nickname the workers came up with), which means ‘we are committed, we are ready.’ Having seen the success of storyboards at other Kumba Resources operations, it was decided for Zimisele to use a storyboard with a theme of making it easier for people to understand on the ground what management wanted to try to achieve with the whole project (see Figure 6.11 for an example of this storyboard, found at the end of section 6.5.8). Seven phases of the project are outlined on the Zimisele storyboard: the current situation; the challenge; discussions to resolve; collection of information and ideas; implementation planning; (new) reality, and future intent.

Continuous improvement behaviours focus

A further development that was under discussion during 2004 had a specific focus on the eight continuous improvement (CI) behaviours that form part of the CI staircase (or maturity model). The continuous improvement team at the Zincor refinery was looking at how to change the behaviours of the operational level staff, and they explored a number of possible themes, including the 2010 soccer World Cup. As at the end of 2004 this new storyboard project was still in the planning phase.

To cross cultural and literacy barriers

As is the case at each of Kumba Resources operations, more than one language is spoken at Zincor, in this case English is the primary business language and Zulu and Xhosa are more used on the shop floor. When using the storyboard, interpreters were used to tell the story in the employee's own language in addition to the use of the pictures on the storyboard. "The reason why we used pictures was to give a common ground of communication. I might speak English, the next guy would speak Zulu and the next guy Xhosa... people tend to interpret things differently and if you don't put words in as a guide you may lose the story eventually."

6.5.8.3 How storytelling is used

Practical use of the Zincor corporate storyboard

Business unit managers took the storyboard (see Figure 6.12, found at the end of section 6.5.8) and rolled it out within their departments. Specific assistance was planned for line management as part of the storyboard rollout, including a flip chart used to guide the storyteller through the process as a presenter of the actual storyboard. In addition, the story could be built up section by section, as the story was made up of a number of components, each of which could be told individually. The components were Velcro-backed, allowing the story to be built up, element by element (a technique in use at other mines).

Complementary tools with Zimisele project storyboard

A PowerPoint presentation with the same story characters was developed to support the main storyboard. Although there is a low level of Personal Computer access in the refinery, public displays are available at strategic places in the plant. A screen saver of the same theme as the storyboard was also made available.

Getting people to identify with the story

Ways were found to get people to buy in to the story: "there's the marketing clerk for example, that's you sitting there", a story listener would be told. As a result, people were helped to realise they were part of the process. This was not "something that

management have thought out and people are just expected to dive in and come along for the journey. They are keen to be part of the journey when they see themselves depicted in the storyboard, they see how they can add to the success of the company, to get to the ultimate goal of the land of milk and honey.”

Use of storyteller’s manual

The Zincor team also made use of a manual (storyteller’s guide) that was supplied with the storyboard. In the manual the storyteller has room for making notes: “that’s where you get your feedback from the storyboard.”

Size of listener groups

In contrast to the situation at some other Kumba Resources locations (such as Leeuwpan), the size of group addressed at Zincor refinery was found to be closer to 50 than 20. These groups were localised per operating unit in the refinery. The refinery had been broken up into twelve units, with a facilitator trained in the appropriate language for each unit.

Location of storyboards

The storyboards were located widely throughout the refinery: “we actually distributed the storyboard to each and every ‘toolbox talk’; the conference room or little tearoom that’s out there.”

Listener involvement

When asked about how to make the story in Zimisele effective, it was stated that for the story to be appealing, it must be interesting and be the type of story that gets the listener to start thinking.

6.5.8.4 Benefits/value gained from storytelling

Flexibility

The removable sections allow the story to be easily updated: “they can change the contents and keep the characters alive by just changing the content with the new information.”

Seeing the bigger picture

Stated benefits of the storyboard included the ability to get the operational level people to really relate to the total picture of what was happening in the business and understand the total picture, the current reality and the future intent. The use of the storyboard for knowledge sharing was said to be “really very powerful.”

Cost effective to make local storyboards

When investigating the best way to communicate the Zimisele initiative it was found that the cost of the storyboards represented a relatively low level of investment, which had a cost benefit to the management.

Easier to learn

The storyboard made it, “easier for people to understand on the ground what management wanted to try to achieve with the whole project.”

Evidence of innovation

The use of the storyboard tool at Zincor, for the first time proved to the whole team that management were not afraid to experiment: “I cannot see that any company can be without storytelling...for me storytelling is the way you communicate with people, is one of the most powerful tools... the great thing about leadership at Kumba [Resources] is they are prepared to experiment.”

Keep the ideas current

It was also found that the value of the storyboard was that it was not just a document to be filed away but rather it was a “live thing that you are expected to deliver on.”

Listener involvement

One of the benefits of using a story was that it “gets the listener to start thinking, you don't want to give the answer directly,” and that, “implications for his situation,” were what each listener was expected to develop.

6.5.8.5 Other storytelling issues

Strong management support

The management team at Zincor refinery were among the most enthusiastic of those in the operational units across Kumba Resources when asked about their views on the use of storytelling and storyboards to assist them in achievement of their business objectives.

No formal measurement

On the subject of measuring the effectiveness of the power of the storyboard, it was noted that, although no formal measures had been put in place, there was significant anecdotal evidence of the effectiveness of the use of the storyboard to assist in communicating with lower-level staff.

Learning through Communities of Practice

The management team also had the benefit of participating in the Continuous Improvement Community of Practice meetings. Through these meetings and an exchange of management between themselves and other of the Kumba Resources operations, they had become aware of the use of storyboards to support knowledge sharing in the business and were keen to try the tool at Zincor.



Figure 6.11 Zincor Zimisele project storyboard¹⁹



Figure 6.12 Zincor corporate storyboard

¹⁹ See Appendix 3 for a profile of Figures 6.11 and 6.12.

6.5.9 Glen Douglas dolomite mine

6.5.9.1 Nature of storytelling

The situation at Glen Douglas was in many ways similar to that at Rosh Pinah: the mine had been included in the experience of the rollout of the Kumba Way but there had been no planned use of stories or storytelling for knowledge sharing since then.

6.5.9.2 Purpose of storytelling

Although the CICOP members at Glen Douglas were well aware of the use of storyboards and the success they enjoyed at other Kumba Resources mines they had not made use of them themselves.

6.5.9.3 How storytelling is used

No evidence was found of planned use of stories during 2004.

6.5.9.4 Benefits/value gained from storytelling

No evidence was found of benefits from planned use of stories or storytelling, as this was not an activity at the mine during the empirical research project.

6.6 Summary

This concludes the presentation of the data gathered during the empirical field work phase of this project.

In summary, data was gathered about the following aspect of the case study organisation:

- Kumba Resources corporate profile
 - Origins
 - Current vision, values and strategy
 - Operations
 - Performance indicators
- Knowledge Management at Kumba Resources
 - Role and development of the knowledge management team
 - Importance of communities of practice
 - Profile of the Continuous Improvement Community of Practice (main focus of the research project)
- Findings of the investigation into the use of stories
 - Structured assessment of the maturity of knowledge sharing and use of stories which yielded quantifiable data
 - Semi-structured and unstructured interviews, collection of artefacts and observation yielded qualitative data.

The data gathered presented opportunities to gain a deeper insight into the use of stories and storytelling in line with the research project problem and was largely qualitative in nature. The most significant data arose from the interviews and collection of artefacts concerning the use of stories and storytelling at the various operational locations (mines and plants) across the Kumba Resources South African operations. This data revealed extensive use of stories and storytelling through two approaches, oral storytelling and the use of graphics (in particular storyboards).

As a result of the data gathering activities, it is possible to conduct an analysis of the findings in the next chapter. This analysis will be conducted against the background of the non-empirical research into three areas: the nature of knowledge management; the use of stories and storytelling for knowledge sharing; world-class performance. Once this analysis has been completed conclusions will be drawn and a summary of findings presented.

7 Analysis of findings

7.1 Introduction

The objective of this chapter is to analyse the data gathered during the empirical phase of this research project. The data presented in Chapter 6 looked at the case study organisation, Kumba Resources; at the level of the organisation, the knowledge management function, the continuous improvement community of practice, and the use of stories and storytelling within that community. This chapter will explore each of these areas in turn, using the findings from the three areas of the non-empirical research comprising this project: the knowledge management context; the use of stories and storytelling for knowledge sharing in a knowledge management strategy; and world-class performance.

This chapter is structured into four main sections, each of which will analyse the theme for that section. The chapter will conclude with a summary of the analysis conducted.

7.2 Analysis of Kumba Resources

7.2.1 Kumba Resources organisation level analysis

A profile of Kumba Resources was presented in section 6.2. At the start of this research project, the company had been listed for less than five years on the Johannesburg Stock Exchange, although it has a heritage dating back to the 1930s. It is a South African-based organisation, although it has operations in the number of other countries, and employs around 10,000 people, which makes it a large organisation in South African terms. It is a profitable organisation, which has enjoyed significant growth in the last several years.

Kumba Resources has a well-defined vision, mission, strategy and objectives founded on a strong set of values, all of which can be found represented in the annual reports

issued by the company, on the company web site, in a variety of internal documents and publications and in statements made in the press by members of the executive. This presents an impression of a coherent management approach to running the business.

The company operates a portfolio of commodity businesses in the area of extracting and processing minerals, including coal, iron ore, base metals and heavy and industrial minerals. This requires a large majority of the total workforce to be employed in operational activities in a number of geographically distributed locations, and entails a wide diversity of language, cultures and operating practices and procedures.

A number of clear statements have been made by Kumba Resources management (including those which form part of the company's strategy) with regard to the organisation's aspirations to achieve world-class performance. To this end the 'Kumba Way' strategy was established in 2002 and now forms a key part of the management approach to delivering on the promise to its stakeholders. This commitment to achieve world-class performance will now be reviewed in the context of the organisation as a whole.

7.2.2 World-class performance in Kumba Resources

7.2.2.1 Best practices in Kumba Resources

Numerous references to the use of best practices at Kumba Resources were found during the empirical study. These included statements made on the company's web site, in the annual reports, in the in-house corporate publication ('Breaking Ground') as well as during the interviews conducted as part of the empirical research.

However, there was no evidence of the use of a classification (such as that identified by O'Dell and Grayson (2004) in section 4.3.1) which defines all levels of best practice: good idea, good practice, local best practice, and industry best practice. This

may lead to some confusion in the company as to the nature of the discussions around those practices.

7.2.2.2 Benchmarking in Kumba Resources

Some statements can be found in Kumba Resources publications referring to examples of the use of benchmarking in measuring performance of Kumba Resources operations. This includes internal and external versions of performance benchmarking in areas such as production and financial performance in order to make good on promises identified in section 6.2.6.2(b). However, there was no clear evidence of a single comprehensive and all-inclusive approach to benchmarking across the whole of the Kumba Resources organisation.

The definition of O’Dell and Grayson (2004:602) (see section 4.4.1), “the process of identifying, understanding, and adapting outstanding practices from others, in order to improve your own performance” may not have been overtly adopted by Kumba Resources but, in practice, is being applied. Gardner and Winder’s (1998) (see section 4.4.1) view that benchmarking can be applied selectively or comprehensively appears to have been adopted by Kumba Resources in that they are benchmarking those activities which helped them to improve their overall performance, as opposed to benchmarking every aspect of their business.

The identified challenges of benchmarking (see section 4.4.2) are not particularly severe in Kumba Resources case, as the industry in which they operate (mineral resource extraction and processing) is well established and offers a number of opportunities to benchmark performance.

7.2.2.3 Standards in Kumba Resources

As was identified in section 6.2.6.2. (c), Kumba Resources has achieved significant results in obtaining certification in line with international standards across a number of its operational locations and has clear plans to expand the range of that

certification, both in terms of the type of certification and the number of locations included (in areas such as environmental management, occupational health and safety).

7.2.2.4 Quality in Kumba Resources

There is an active focus on quality issues at Kumba Resources. The Safety Health Environment and Quality (SHEQ) function is well established in the company, and forms part of the corporate commitment to operational excellence, particularly in the area of safety and environmental management. This commitment extends to the publication of a quarterly internal newsletter focusing on the issues covered by the SHEQ teams across the company.

There is also evidence that in a number of other areas, the company has achieved performance levels worthy of recognition as highlighted in section 6.2.6.2.(d) (including receiving a number of awards); further indications of the commitment to quality at the company.

7.2.2.5 Capability Maturity Models in Kumba Resources

Although there were no explicit statements to be found in the documentation obtained from the company or on the Kumba Resources website as to the application of the capability maturity model approach, on further investigation it became clear that the approach used inside the company known as ‘the staircase’ is in fact based on the principles underlying the capability maturity model. The use of this staircase will be discussed further in section 7.4.

Kumba Resources can, therefore, be seen to comply, to some extent, with the elements of world-class performance as defined in Chapter 4, but there is clearly an opportunity to increase the level of consistency across the organisation in each of the five elements of the model, whilst at the same time increasing the level of maturity in each of those areas. Examples of this approach in various areas would be:

- Best practices: the implementation of a company-wide approach to identify, evaluate and implement best practices, whether sourced internally or externally
- Benchmarking: to identify where the use of benchmarking will add to improved performance, with or without the use of best practice. Benchmarking can also be applied using both internal and/or external benchmarking comparisons.
- Standards: to proactively identify which standards apply to Kumba Resources business and whether or not the achievement of those standards meets the corporate objectives; then to develop and implement a plan for the achievement of the standards selected
- Quality: to apply the principles of quality management across the organisation in such a way that quality is not only seen to be activity associated with operations/production functions but also applying to all aspects of the business.
- Capability maturity models: to identify where the maturity model concept can be successfully applied and how to do so.

7.2.3 Role of knowledge management in the Kumba Resources business strategy

The role of knowledge management in Kumba Resources was discussed in section 6.3. Clear evidence was found of a commitment dating back to 2002 to have knowledge management as an element of and supporting the overall Kumba Resources business strategy. Knowledge management activities were described in terms of existing strategic and tactical decision-making, as well as assisting in the sharing of best practices and other elements of world-class performance. This is consistent with a number of authors who have identified the importance of the relationship between business strategy and knowledge management strategy (see section 2.4.1). Another indication of the commitment to knowledge management is the formal structure that has been established, including the appointment of a full-time knowledge management manager during 2003, as well as the establishment of a knowledge management department.

7.2.4 Importance of knowledge sharing in Kumba Resources

In line with the commitment to knowledge management as one of the elements of the conduct of the strategy and the implementation of practices that would enable world-class performance, evidence was found of the commitment to the sharing of knowledge across the organisation (see section 6.2.3). This included not only statements made in Kumba Resources publications, but also through the use of a number of practices used in the organisation. These include, for example, the use of a comprehensive corporate library, the building of a knowledge map for the organisation as well as the establishment, and the funding of a significant number of communities of practice (the evidence of this can be found in section 6.3.3 in terms of the initiatives undertaken by the Kumba Resources knowledge management team).

The importance of knowledge sharing has been widely recognised in the literature and a number of processes (identified in Table 2.5) to assist in the sharing of knowledge have been clearly identified. In addition, specific objectives for the sharing of knowledge have been identified by a number of authors, as was discussed in section 2.3.2. Kumba Resources has clearly established a number of the initiatives just mentioned, in order to support this knowledge sharing.

The Dixon (2000) model (as discussed in section 2.3.5) can be applied to Kumba Resources: evidence was found of serial sharing (within the same team, such as the CICOP at a particular location), near sharing (between members of the CICOP at different geographical locations), far sharing (tacit knowledge shared by members of the CICOP on special projects, such as the introduction of stories and storytelling as knowledge sharing practices) and strategic sharing (where more complex forms of knowledge, such as how to successfully complete technical projects, are shared across business units and through time).

Some evidence was found during the semi-structured and unstructured interviews of the concerns expressed by O'Dell and Grayson (2004) in section 2.3.5, in terms of obstacles to knowledge sharing (including organisational structures; lack of a culture

of knowledge sharing; challenges of physical distance; relying extensively on explicit knowledge (for example in documents and databases) as well as issues surrounding knowledge sharing rewards), but this is to be expected in an organisation which has nearly 10,000 people spread around a large geographical area, accommodating many different types of business units and regional diversity (such as language and culture).

In terms of the SECI model (see section 2.3.4), each of the main elements of knowledge sharing can be found at Kumba Resources: socialisation (where the company is actively encouraging the individual sharing of knowledge through the growth of a culture that supports knowledge sharing); externalisation (through the use of a number of tools, including the provision of a document management system and other forms of explicit knowledge capture); combination (using a number of explicit sets of knowledge available from both internal and external sources) and internalisation (to a variety of initiatives to train, educate and communicate with employees, including the use of stories and storytelling, supported by a variety of media). The SECI model (see section 2.3.4) recognises three levels of the individual, team and organisation and it is clear from the evidence in the case study that Kumba Resources is attempting to ensure knowledge sharing at those three levels.

7.3 Analysis of Kumba Resources knowledge management function

7.3.1 Objectives and activities

There has been extensive discussion in the literature as to the nature of knowledge management and how to leverage knowledge management in an organisation, including the types of objectives to be set, particularly in the area of activities in a knowledge management function to support knowledge processes such as knowledge sharing (see Table 7.1 on page 7-18). These views include the structure, objectives, role, measures, tools and practices, processes and practices that can be used to support a knowledge management strategy in the organisation.

A profile of the Kumba Resources knowledge management function has already been presented in section 6.3. It is clear from that (as well as the profile of Kumba Resources as a whole in section 6.2) that knowledge is valued as a resource at Kumba Resources. Although no single source or model could be identified as the basis on which the Kumba Resources knowledge strategy has been established, the implementation of knowledge management at Kumba Resources appears to carry many of the characteristics associated with world-class performance in terms of knowledge management (as will be analysed in section 7.3.2).

The Kumba Resources knowledge management function certainly complies with the views of Prusak (in Cohen, 1998) in terms of the three most common objectives found in the 100 knowledge projects which Prusak evaluated:

- To make knowledge visible and show the role of knowledge in the organisation: this has been achieved, for example, through the Kumba Resources orange pages and knowledge map and various other initiatives and through coverage in the Kumba Resources internal publications
- To develop a knowledge-intensive culture by encouraging and aggregating behaviours such as knowledge sharing: evidence of this comes from the diverse initiatives of the knowledge management team members, including the establishment of many communities of practice for knowledge sharing
- To build a knowledge infrastructure: evidence of this comes from the use of technology to further the management of knowledge at Kumba Resources (such as the orange pages, corporate library, document management system and other initiatives).

Hiebeler (1996) has identified (as discussed in section 2.3.3) a set of success factors for knowledge management, which can be applied to the Kumba Resources knowledge management function:

- Taking a long-term view of the benefits of a knowledge strategy: this has clearly been happening judging by the evidence of the corporate commitment

since 2002 and the scope of the current knowledge management organisation with its objectives stretching into the future

- Integrating knowledge management into the culture: this is being reinforced by the knowledge management team as well as by active support from executive and line management
- Making and communicating a commitment to knowledge sharing: ample evidence of this has already been presented in terms of the Kumba Resources corporate commitment to knowledge management since 2002, through statements made and actions taken
- Developing a framework for capturing knowledge: this is still under development (through a number of the initiatives from the knowledge management team, such as the corporate orange pages the knowledge map and document management system)
- Making information systems accessible and easy to use: this has been a focus of the knowledge management team (through the provision of various tools such as the community of practice toolkit and the customer-oriented approach of the information and library service)
- Creating, capturing, and transferring knowledge internally: Kumba Resources knowledge management has achieved this in a number of ways, in particular through the establishment of communities of practice
- Allocating time and resources for knowledge sharing: an example of this is the knowledge conferences that have been convened as well as the active participation by the knowledge management team in supporting the communities of practice
- Finding financial and non-financial ways to measure the benefits of knowledge management: this is an area where little evidence was found that significant progress has so far been made at Kumba Resources.

Elements of the Kumba Resources knowledge management function approach will now be evaluated against the proposed world-class framework performance measures.

7.3.2 World-class performance in Kumba Resources knowledge management function

7.3.2.1 Best practices in Kumba Resources knowledge management function

Many of the most widespread knowledge management practices identified in the literature and presented in Table 2.7 can be found at Kumba Resources. Several of these have already been mentioned in this chapter (the Kumba Resources knowledge map, the Kumba Resources orange (yellow) pages, communities of practice and a document management system) as well as other tools such as knowledge audits and the provision of physical and virtual library services.

What is not so well-defined is a broader understanding of the overall approach of Earl (2001), as outlined in section 2.3.4, or a specific model (such as the learn before/during/after model as advocated by Collison and Parcell (2001) in the case of BP (see section 2.3.4)) or a set of clearly defined knowledge management processes drawn from other sources (such as one or more of the specific processes and sub-processes mentioned in Table 2.5). Although many of the knowledge management function's activities can be closely identified with the SECI model (see section 2.3.4), including supporting knowledge sharing at the level of the individual, the group and the overall organisation, the explicit use of such a model was not identified during the research.

The wide range of activities undertaken by the Kumba Resources knowledge management team are based on extensive external research in the local (South African) and international knowledge management communities (in particular with Buckman Laboratories) for guidance on the adoption of best practices.

7.3.2.2 Benchmarking in Kumba Resources knowledge management function

Kumba Resources knowledge management function has undertaken to benchmark its knowledge management activities since the outset (Sandrock, 2004). This has taken

place through a variety of initiatives, including comparisons with other local organisations implementing knowledge management, and through visits to other companies in an effort to benchmark Kumba Resources knowledge management activities and achievements (see section 6.2.6.2.(b)).

These activities conform well to the definition of benchmarking from Gardener and Winder (1998) (which was presented in section 4.4.1), although the benchmarking activities are largely qualitative rather than quantitative in nature. Some of the different types of benchmarking identified by de Jager (1999) (see section 4.4.1) have been used at Kumba Resources (co-operative and collaborative benchmarking), although Kumba Resources faces the same challenges as identified by Kouzmin *et al.*(1999) (see section 4.4.1). These challenges are: the difficulty of obtaining data about competitor organisations (because there are so few users of knowledge management at the standard Kumba Resources has reached in South Africa); identifying the type of benchmarking measures to be used (in the field of knowledge management this is particularly problematic due to the cultural nature of many of the aspects of knowledge management); the completeness of benchmarking data (very little documented evidence exists in South Africa against which to benchmark), and having benchmarks durable over time (due to the relatively recent establishment of the Kumba Resources knowledge management function it has, thus far, been difficult to build up an historical perspective of performance).

7.3.2.3 Standards in Kumba Resources knowledge management function

As has been identified (in section 4.5.3) the area of standards for knowledge management is relatively immature (in effect, no standards have been established other than the interim standards available from Australia (SAI, 2003)), and there is little evidence that even those have been widely adopted outside of Australia. It is understandable, therefore, that for the knowledge management activities at Kumba Resources, using internationally recognised standards as a measure of world-class performance is not feasible.

7.3.2.4 Quality in Kumba Resources knowledge management function

As was identified earlier in this chapter (see section 7.2.2.4) there is a strong corporate commitment to quality within Kumba Resources, at least for the purposes of operational performance in the production areas (on the mines and in the processing plants and refineries). Exactly how that translates into quality of objectives for knowledge management is questionable, as the subject of quality management in a specific knowledge management context has received little attention in the literature, other than the specification, for example, of specific practices and tools for the implementation of knowledge management (see section 2.3.7). As was highlighted in section 4.6.3, the closest equivalent in the knowledge management field would be the Most Admired Knowledge Enterprise – MAKE - awards. Up to the completion of this research project, Kumba Resources had not been nominated for a MAKE award.

7.3.2.5 Capability Maturity Models in Kumba Resources knowledge management function

The concept of the capability maturity model (CMM) (in the context of the proposed world-class performance framework as presented in Figure 4.1) was discussed with the knowledge management team at the outset of this research project. The widespread use in Kumba Resources of the performance staircase (which is similar to the CMM levels of performance, see the example in Appendix 2) made the use of the CMM approach for the structured interviews assessment of knowledge sharing and the use of stories and storytelling acceptable to the knowledge management manager. However, no evidence was found that the knowledge management team itself is using any form of CMM in terms of measuring its performance or the services that it offers its clients. However, the knowledge management manager has been involved (as part of the external benchmarking activities), with at least one other South African-based organisation which has itself developed a maturity model, so that there is at least awareness of the possibility of applying this concept in the knowledge management function in Kumba Resources (see section 6.26.2(b)).

In summary, the scope, objectives and activities of the knowledge management team in Kumba Resources, represent a significant commitment on the part of the company's executive management and the knowledge management function itself to supporting and driving knowledge management as an element of the company's strategy. The knowledge management function, in turn, shows evidence of well-developed practices (in particular the establishment of communities of practice for knowledge sharing), benchmarking (albeit of a largely informal nature) and a commitment to quality and an understanding of organizational maturity which well positions the Kumba Resources knowledge management function in terms of fulfilling its role to its stakeholders.

Having discussed the Kumba Resources organisation as a whole and the knowledge management function specifically, the next section will focus on the CICOP and its role in the use of stories and storytelling as knowledge sharing practices.

7.4 Analysis of the Kumba Resources CICOP

7.4.1 Objectives and activities

The role of, and approach to, implementing the community of practice as discussed by a number of authors (see section 2.3.7) can be found in large part in the CICOP in Kumba Resources. Wenger's (2000) categories of COP membership, as presented in section 2.3.7, can be used to present an analysis of the membership of the Kumba Resources CICOP:

- Core group: these are the individuals who drive the community and include those listed in Table 6.2
- Full membership: these are all the members of the Kumba Resources continuous improvement function distributed throughout the business and who may participate in meetings and activities of the COP from time to time
- Peripheral membership: these are individuals in Kumba Resources who have an interest in the activities of this specific CICOP (such as members of the

knowledge management function, members of other communities, and representatives of key business areas such as the Kumba Way) and may participate in CICOP activities from time-to-time

- Transactional participation: a number of role players were identified (external to Kumba Resources) who provide services to the CICOP (consultants and service providers, offering professional advice and guidance in areas such as continuous improvement practices)
- Passive access: a large number of people inside Kumba Resources who benefit from the activities of the CICOP, including the majority of the operational and management level employees in each of the locations and functions where the CICOP operates.

Core members of the CICOP participate on a voluntary basis and represent the business functions or locations for which they are responsible. In most cases this means that the line management responsibility for CI has a direct parallel in membership of the CICOP. Some core members have alternate members (from the full membership category) nominated to represent them in case of absence at meetings or where they are unable to fulfil other commitments to the CICOP.

The CICOP operates as both a face-to-face and virtual community (see section 6.3.5 for a description of how the CICOP operates). CICOP meetings are used to bring members up to date with recent developments in the community as well as to act as a showcase for CI activities in the case of meetings hosted at an operational site (such as the meetings at Leeuwpan and Glen Douglas held in the first half of 2004, where the host CICOP member had an opportunity to share insights into the local operation with the other members of the community).

The CICOP has at its disposal the expertise from the continuous improvement functional management team spread across the Kumba Resources business. The extent to which the operations of this CICOP group are world-class will now be discussed.

7.4.2 World-class performance in Kumba Resources CICOP

7.4.2.1 Best practices in Kumba Resources CICOP

Extensive use is made by the members of the CICOP of best practices which have been acquired from both inside and outside the organisation. These best practices are identified in the 'CI code book' and other related documentation which helps to define the nature of what the CI function has as its mission to deliver to the organisation. Based on observation while attending a number of the periodic meetings of the community and during visits to several of the continuous improvement function locations, as well as inspection of CI function documentation, it became clear that the CICOP is conforming with the overall corporate commitment to the implementation of best practices. However, as at the corporate level, the CICOP does not appear to distinguish between the different types of practice in the way indicated by O'Dell and Grayson (2004) (see section 7.2.2.1).

7.4.2.2 Benchmarking at Kumba Resources CICOP

The very nature of the CICOP encourages internal benchmarking, as is to be expected from the findings from the literature (see section 4.4.1). Evidence of informal, internal benchmarking was observed during the regular meetings of the CICOP, which took place during the empirical research phase of this project (such as the presentation on the CI approach used at Glen Douglas mine as mentioned in section 6.3.5).

With respect to external benchmarking, external sources have been used to advise the CICOP, but although best practice information is flowing into the CICOP there was no evidence of any formal external benchmarking taking place during this project.

7.4.2.3 Standards at Kumba Resources CICOP

In the context of knowledge management, as previously discussed (section 4.5), there is very little opportunity for a community such as this CICOP to use formally recognised standards in connection with its knowledge sharing activities.

7.4.2.4 Quality at Kumba Resources CICOP

Although the CI function is a separate organisational unit from the SHEQ function, the members of the CICOP operate within the same quality management environment as the rest of the organisation in terms of meeting stated corporate quality objectives (championed by SHEQ). In addition, the very nature of the work within the continuous improvement function requires a commitment to meeting and exceeding quality targets. As part of that commitment, a significant component of the work of the CICOP is focused on quality issues.

In terms of quality of how it manages itself as a community, this is addressed by the core members of the CICOP who set the standards in terms of participation in the life of the community (for instance, flow of information in the community, attendance at meetings, and standards of presentations made). Judging by the performance of the community at the meetings attended (direct observation) as well as during the various interviews conducted (structured, semi-structured and unstructured) and inspection of artefacts (documents, copies of presentations) the CICOP lives the values statement included in other Kumba Resources business strategy in relation to quality.

7.4.2.5 Capability Maturity Models at Kumba Resources CICOP

The concept of maturity models in the CICOP was already well established in 2003 prior to the commencement of this research project. Evidence of this can be found in the CI assessment tools in use in the Kumba Resources CI function (the CI staircase

and code book already referred to, see Appendix 2)¹. The staircase (maturity) approach recognises different levels of achievement and different processes involved in each level. In that sense, the use of the staircase is very similar to the discrete version of the CMM as identified in section 4.7.

In summary, the CICOP (as established through observation, the collection of artefacts and the input received during a number of interviews conducted throughout the research) is active in the area of best practices, benchmarking, quality management and the use of the capability maturity model approach as elements of the overall objective for Kumba Resources of achieving world-class performance (see section 6.2.4).

7.4.3 Maturity of knowledge sharing in Kumba Resources CICOP

For the CICOP the findings of the maturity assessment interviews in the area of knowledge sharing (as presented in section 6.4.1) will be discussed in sections 7.4.3.1 to 7.4.3.9. It should be remembered that the construction of the research instrument was a unique development to answer the research problem of this project, and it was constructed through the application of what was discovered during the non-empirical research phase of this project.

Part Four of Appendix 1, is the maturity rating scale that was used for both elements of the structured interviews assessing maturity in the areas of knowledge sharing and the use of stories and storytelling. Included here are the capability levels and titles²:

- Capability level Zero (0): not performed
- Capability level One (1): initial - Performed informally
- Capability level Two (2): repeatable - Planned and tracked
- Capability level Three (3): defined – Well defined
- Capability level Four (4): managed - Quantitatively controlled

¹ This familiarity of use of the maturity model concept made the selection and use of a maturity model rating scale a logical move when it came to designing the research instrument used in the maturity assessment of knowledge sharing and the use of storytelling.

² A more comprehensive description is available in Appendix 1, part 4.

- Capability level Five (5): optimising - Continuously improving.

The following sub-sections will now explore the issues assessed by the structured interviews as listed in Table 6.3. For ease of reference, Table 7.1³ is presented as a consolidated list of the knowledge sharing factors identified in the literature search and on which the research instrument was based:

Knowledge sharing issue	Source reference
Ownership	APQC, 2000; BSI, 2003a; Chase, 2003; Collison and Parcell, 2001; de Jager, 1999; Earl and Scott, 1999; Ehms and Langen, 2002; Kochikar, 2000; O'Dell and Grayson, 1998; Skyrme, 2000; Szulanski, 1994; TFPL 1999
Objectives	APQC, 2000; BSI, 2003a; Chase, 2003; de Jager, 1999; Ehms and Langen, 2002; Kochikar, 2000; O'Dell and Grayson, 1998, Skyrme, 2000; Szulanski, 1994; TFPL 1999
Tools & practices	BSI, 2003a; Demarest, 1997; Nonaka, 1994; Skyrme, 2000; TFPL 1999
Training & education	Boje, 1991; BSI, 2003a; Ehms and Langen, 2002; Hansen, 1993; TFPL, 1999
Measures	APQC, 2000; BSI, 2003a; Chase, 2003; Cohen, 1998; Davenport <i>et al.</i> , 1996; de Jager, 1999; Demarest, 1997; Ehms and Langen, 2002; Gold, Malhotra and Segars, 2001; Hiebeler, 1996; Kochikar, 2000; Liebowitz and Chen, 2004; O'Dell and Grayson, 1998; Ruggles, 1998; Skyrme, 2000
Success stories	BSI, 2003a; Collison and Parcell, 2001; Davenport, <i>et al.</i> , 1998; Elliott and O'Dell, 1999; Gill, 2001; Liebowitz and Chen, 2004; Reamy, 2002
Benchmarking	APQC, 1997, 2000; Chase, 2003; de Jager, 1999; Gardner and Winder, 1998; Kouzmin <i>et al.</i> , 1999; O'Dell and Grayson, 1998, 2004; Szulanski and Winter, 2002;
Reward and recognition	Davenport and Prusak, 1998; Hansen, 1993; Kochikar, 2000; Liebowitz and Chen (2004); Ruggles, 1998
Link to knowledge management strategy	APQC, 2000; BSI, 2003a; Collison and Parcell, 2001; Demarest, 1997; Ehms and Langen, 2002; Hansen, 1993; Kochikar, 2000; Zack, 1999

Table 7.1 Consolidated list of sources for knowledge sharing issues

³ This table is similar in nature to Table 3.6, which consolidates the literature sources for the stories and storytelling issues.

7.4.3.1 Ownership of knowledge sharing

For any management strategy to succeed there must be clearly defined ownership and the sources identified as part of the non-empirical phase of the research project clearly identify the importance of ownership of knowledge management (see Table 7.1).

The overall assessment of maturity for this question was 1.00 (see Table 6.3). This indicates that the ownership of knowledge sharing, in the opinion of the interviewees, is only at an informal level, suggesting significant room for growth in maturity in terms of the definition of ownership.

7.4.3.2 Objectives for knowledge sharing

Once ownership of the knowledge sharing initiative has been established then it is clearly useful to set objectives for knowledge sharing (see Table 7.1).

The overall assessment of maturity for this question was 1.20 (see Table 6.3). This indicates that for some interviewees the objectives for knowledge sharing were more clearly expressed than being informal, although this rating was only marginally higher than with the ownership item.

7.4.3.3 Tools and practices for knowledge sharing

Having established the ownership and objectives for knowledge sharing there are a number of possible tools and practices that can be used to make the knowledge sharing objectives a reality (see Table 7.1). The overall assessment of maturity for this question was 1.07. This result suggests that the selection of tools and practices for knowledge sharing is being performed only on an informal basis.

7.4.3.4 Training and education for knowledge sharing

Having selected the tools and practices to be used as part of the knowledge sharing initiative it may be appropriate to identify what training and education in knowledge sharing is required for those tools and practices (see Table 7.1). The overall assessment of maturity for this question was 0.60 (see Table 6.3) and that for the group as a whole, training and education for knowledge sharing remains, at best, an informal activity.

During the rest of the empirical data gathering, this topic was rarely raised during the unstructured interviews, except in relation to the training of managers in how to use the storyboards (see for example, section 6.5.8.3).

7.4.3.5 Measures of knowledge sharing

Once the knowledge sharing initiatives are under way, with appropriate ownership, objectives, tools and practices, training and education in place, it makes sense and becomes important to implement measures of knowledge sharing as for any other aspect of a knowledge management strategy (see Table 7.1).

The overall assessment of maturity for this question was 0.53 (see Table 6.3). This was one of the lowest scores recorded and indicates a significant lack of measurement of the knowledge sharing effort.

7.4.3.6 Success stories of knowledge sharing

Having implemented knowledge sharing and understanding the degree of success enjoyed by using appropriate measures, it becomes possible to develop and circulate success stories of knowledge sharing in the organisation (see Table 7.1).

The overall assessment of maturity for this question was 1.33 (see Table 6.3). This slightly higher score indicates that on average, all of the interviewees had some experience of informal success stories of knowledge sharing.

7.4.3.7 Benchmarking of knowledge sharing

Once the knowledge sharing practice is established and measures are available, it then becomes possible to consider the possibility of benchmarking, internally or externally, quantitatively or qualitatively in terms of the knowledge sharing achievements (see Table 7.1).

The overall assessment of maturity for this question was 0.60 (see Table 6.3). The low scoring here indicates that overall benchmarking of knowledge sharing is being performed informally at best.

7.4.3.8 Reward and recognition for knowledge sharing

One element to consider in a knowledge sharing strategy is the role of reward and recognition for knowledge sharing (see Table 7.1). The overall assessment of maturity for this question was 0.27 (see Table 6.3). This was the lowest score recorded overall for the maturity assessment of knowledge sharing and indicates that reward and recognition for knowledge sharing is largely non-existent.

7.4.3.9 Knowledge sharing as part of the overall knowledge management strategy

The last part of the overall assessment of knowledge sharing focuses on the position of knowledge sharing in the overall knowledge management strategy (see Table 7.1). The overall assessment of maturity for this question was 1.00 (see Table 6.3). This rating indicates the overall strategy for knowledge management within the CICOP is informal. This is in contrast to the corporate commitment to knowledge sharing.

7.4.3.10 Summary of maturity of knowledge sharing within the CICOP

The analysis of the knowledge sharing maturity assessments in sections 7.4.3.1 to 7.4.3.9 indicate that knowledge sharing within the CICOP is being conducted on an informal basis. The implication of this is that there are significant opportunities to increase the maturity of knowledge sharing across the membership of the CICOP, and thus contribute to overall world-class performance improvement. In addition, assuming the validity of the research instrument, this indicates the possibility that although knowledge sharing is included as part of the overall commitment to knowledge management in the Kumba Resources organisation, there may be significant opportunities to improve the effectiveness with which knowledge is shared across not only the CICOP but potentially the rest of Kumba Resources (if the CICOP results were to be taken as in anyway representative of the organisation as a whole). As this is a small group compared to the total population of employees in Kumba Resources, this suggests a worthwhile area for future research.

7.5 Analysis of the use of stories and storytelling in the CICOP

7.5.1 Overview of the use of stories and storytelling in CICOP

As discussed in the main research problem, the focus was in understanding the potential of stories and storytelling as practices for knowledge sharing to enhance world-class performance. Once the empirical investigation had commenced and the maturity assessment interviews were completed, it became clear that the planned use of stories and storytelling in the CICOP during 2004 was essentially related to the use of the storytelling practice (including the development of stories, the training of storytellers and the delivery to listeners) supported by a number of media, in particular, printed storyboards (as have already been identified in section 6.5). The analysis of the evidence gathered in terms of the planned use of stories and storytelling for knowledge sharing in the CICOP will now draw upon the evidence already presented in sections 6.5.1 to 6.5.9.

The elements of the proposed world-class performance framework have been applied three times already in this chapter: at the level of Kumba Resources the organisation; to the Kumba Resources knowledge management function; and to the Kumba Resources CICOP. To apply the entire framework in the case of the use of stories and storytelling for knowledge sharing would require an agreed series of definitions, specifically related to stories and storytelling, of: best practices; benchmarking; standards; quality management, and capability maturity. As has been identified earlier in the chapter, the relative immaturity of the subject matter area (stories and storytelling used for knowledge sharing) excludes the possibility of applying explicit agreed measures (as no agreement exists) from the literature for the first four of these areas of the world-class performance model.

However, the relative maturity of the capability maturity model format in the knowledge management field and its use in terms of the construction of the research instrument (used for the maturity assessment for knowledge sharing and the use of stories and storytelling as knowledge sharing practices) in this research, provide the greatest opportunity to add value in terms of the findings of this research. Using the CMM approach, it is possible to further analyse the findings of the research in terms of the topics covered by the research instrument⁴ (see Appendix 1, Part Four), complemented by the data gathered in the rest of the empirical study, through the semi-structured and unstructured interviews, observation and collection of artefacts (in line with the data gathering methods proposed in section 5.4.2).

7.5.2 Ownership of stories and storytelling

If stories and storytelling are to be used in a meaningful way as practices for knowledge sharing, then like other elements of an overall approach to knowledge management, ownership is required (see Table 3.6). The overall assessment of

⁴ The same comments about the compilation and use of the research instrument apply here as in the case of knowledge sharing maturity in this chapter. In addition where the literature largely has a focus at the level of knowledge management initiatives as a whole, for the purposes of this research the sources identified have been applied more narrowly in the area of storytelling: in other words storytelling is implicitly rather than explicitly included in the comments made by those authors.

maturity for this question was 0.13 (see Table 6.4). This indicates that ownership in the CICOP is not well defined.

This ownership issue is capable of treatment on two levels: the ownership by individuals and the ownership by a group. Although there was no obvious claim to own a story from the maturity assessment structured interviews, when further discussion was held, it became apparent that the sense of ownership was, in fact, stronger than the maturity assessment structured interviews indicated. A good example of this is demonstrated by the stories in use at several of the mines where the localisation of the story was something that was evidently a source of pride (the 'it was invented here' approach), such as for the marula tree story at Grootegeluk. Other examples of this were found in the various stories (with their accompanying storyboards) that were in use in a variety of locations, such as at Grootegeluk, Thabazimbi and Sishen mines. In another sense, the stories in use through the storyboards could be seen to be in communal ownership, in such a way that there is a difference between 'custodial ownership' and 'control ownership'. In the case of custodial ownership the story could be seen to be owned by a group (such as the CI function at Grootegeluk for the marula tree story) whilst the control of the story could be seen as a much more communal activity: the story is developed and maintained through a coherent approach to involvement of the community it was intended to address (for example, the name 'Zimisele' for the campaign at Zincor refinery came from the employees, not management (see section 6.5.8.2).

The corollary of this ownership issue would be the sense of 'not-invented-here' resistance, where, because a story originates elsewhere, there is a possible sense of loss of ownership (or failure to own in the first instance) potentially making the story less attractive for use in other than the location of origin. In that sense the possibility of a story travelling could well be restricted by the possible resistance of community members and objection to the story from those not involved in its origination.

7.5.3 Executive sponsorship of the use of stories and storytelling

Executive sponsorship is the next issue for analysis as an important element of implementation (see Table 3.6). The overall assessment of maturity for this question was 0.00. This indicates that there is no perception of executive sponsorship for the use of stories and storytelling in the CICOP.

Perhaps this should not be surprising as, due to the generally low level of maturity associated with the use of stories and storytelling, a lack of executive sponsorship could be part of the reason for an overall informal approach. The only area where executive sponsorship was evident was for the ‘ants’ theme used in the story material in use supporting the Kumba Way strategy. In this case, the ownership was clearly seen to sit with the Kumba Way team and, through them, to a higher level with Kumba Resources executive management.

On investigation there were several cases, in particular at Sishen and Grootegeluk where the executive sponsorship was much more evident than would at first appear. At Grootegeluk the pro-active stance taken by the Mine Manager was clear from several indicators: from the obvious enthusiasm shown by the individual himself, the material on display in his office and at various locations around the mine and the reputation established in terms of his enthusiasm for the use of stories.

What also became clearer as the study progressed was that the cross-fertilisation of ideas in the use of storyboards was as a consequence of the appointment of members of the management team to new positions at a different Kumba Resources location, taking with them as they went lessons learned from the success at previous mines. Examples of this could be found in the move of a manager to Grootegeluk from Thabazimbi and another manager from Sishen to Zincor (see section 6.5.1.4). Hence, the executive sponsorship has the potential to act not only as a strong supporting mechanism ‘in situ’ but also act as a transfer of potential best practice on a broader front within the organisation.

7.5.4 Objectives for stories and storytelling

The importance of objectives in a knowledge management strategy (which includes knowledge sharing practices such as the use of stories and storytelling) has been widely recognised (see Table 3.6). The overall assessment of maturity for this question was 0.27 (see Table 6.4). This indicates that either the objectives had not been created, or if they had, they had not been communicated to members of the CICOP. Another possible interpretation is that the stories that exist in the CICOP and the tools and practices that are being used (such as the use of storyboards) are not recognised as stories and practices for the telling of stories.

In the case of the use of the ants theme in the Kumba Way, even though the story concept was generally not developed beyond individual scenes (episodes of a full story) on each poster or other promotional medium used (such as mouse pads), there could be seen a clear link to the overall objectives of the organisation for the use of the practice in the recognition given to the Kumba Way by members of the CICOP. A further example of this sense of clear objectives could be found in the marula tree story where the team that developed and delivered the story were easily able to explain their reasons for doing so.

After the maturity assessment interviews the further gathering of data revealed a rich source of objectives as summarised in Table 7.2. The table shows reasons identified by Sole and Wilson (2002) matched with the data from the empirical findings.

Objectives according to Sole and Wilson (2002)	Objectives at Kumba Resources (examples drawn from section 6.5)
Communicate embedded knowledge/share tacit knowledge	A number of different examples of communication of know-what and know-how in areas such as how to enhance organisational performance
Develop trust and commitment/resolve conflicts	Several cases of using stories to develop trust as well as encouraging teamwork to improve mutual understanding, in particular in relation to the values associated with each location as well as at the Kumba Resources corporate level
Simulate problem-solving	Although the focus was different from location to location in terms of the problem to be solved it was clear that the storytelling approach in each case involved problem

	solving whether through the individual scenarios depicted on the various scenes depicted on the mine storyboards.
Organisational renewal	This was a common focus on many of the storyboards used, with a sense of a journey from the current harsh reality through a series of challenges and opportunities towards the achievement of a future intent
Socialisation of new employees	This purpose was overtly stated in some cases (Leeuwpan) whilst providing a secondary reason in other locations
Sense-making	This was true of all of the mines and refinery locations. Of particular note is the Zincor Zimisele storyboard which raised sense making issues associated with specific business challenges and the Grootegeluk marula tree story in terms of understanding business fundamentals
Learning/facilitate unlearning	As can be seen from the messages contained on the storyboards (both in graphics and in text) the storyboards have been designed to enhance individual and group learning, including unlearning old, established ideas
Innovation and new product development	Although there was little emphasis on new product development (other than with the marula tree story) the innovation content was high in terms of organisation development
Share norms and values/generate emotional connection	This was particularly strong in the communications surrounding the integration of Kumba Way values (by stating those values and using the ant as symbols in the storyboards) and where explicit mention was made of location-specific values (such as at Thabazimbi)
Kickstarting a new idea (in a team setting)	The focus was on the achievement of business goals in several of the storyboards (in particular at Zincor and Sishen's 2 nd generation storyboard). In all of the other storyboards new ideas were also introduced
Socialising new members (team building)	Although not an explicit objective in every case, the design of the storyboard offers the opportunity for it to be used in teambuilding situations
Mending relationships (within and between teams)	This was much more difficult to identify, as in the Kumba Resources environment the emphasis is more on building relationships rather than repairing them. Also, the focus of the storyboards is on building relationships within a particular location (such as a Tshikondeni) rather than across the organisation as a whole
Sharing wisdom (within and between teams)	In every case each of the storyboards used created the opportunity for the storyteller as well as the audience (listeners) to participate in the sharing of a deeper understanding

Table 7.2 Objectives for the use of stories and storytelling in the CICOP

The indications from the literature were that a wide range of possible objectives (or reasons) for using stories exist. Within the context of the Kumba Resources CICOP,

the list of objectives is narrower and deeper. It is narrower in the sense that broader issues associated with the organisation as a whole (such as recruitment policies) are excluded, whilst the depth of explanation required to ensure that real value is added through the use of the stories and storytelling is enhanced by the richness of the experiences.

7.5.5 Funding of stories and storytelling

The next important issue for analysis is the issue of funding (see Table 3.6). The overall assessment of maturity for this question was 0.27 (see Table 6.4). This indicates that the funding of any storytelling initiatives is either not formally recognised (because it may be included in some other budget) or is at best informal where it is recognised.

That is not to say that the initiatives were unfunded, but rather that the funding did not represent such a large financial commitment that a more formal approach was required. This could and did result in funding being secured and managed at a local level without a single coherent overall sense of what funding was being put into the development and sustaining of the storytelling approach across the CICOP as a whole.

For the use of other storytelling methods, such as the support of the Kumba Way initiative (see section 6.5.1.3) the funding was drawn from outside of the CICOP area as the initiative was intended to meet a different set of objectives to only those of the CICOP. Here the CICOP community were on the receiving end of the initiative without being in any way involved in the funding decisions.

7.5.6 Tools for stories and storytelling

Once it has been agreed that stories and storytelling represent useful practices to assist with sharing knowledge in the organisation, it is necessary to select appropriate tools to use for the telling of stories, as has been recognised for other aspects of a knowledge management strategy (see Table 3.6).

The maturity rating for this question was 0.73 (see Table 6.4). This is one of the higher scores in this maturity assessment and indicates that the use of tools is recognised (for example, the deployment of the storyboard as a tool to support storytelling) although the use of these tools remains informal.

The primary storytelling tool that was identified and is under discussion in this analysis is the storyboard. This tool merits a more exhaustive investigation as there are many aspects to the use of the tool that need explanation. Amongst these are the following:

- The physical appearance of the storyboard (size; colour usage, logical flow of the story; ability to build the story, such as through the use of Velcro-backed panels)
- Which media to use to tell the story depicted on the storyboard (choice or mixture of various media such as personal computer-based tools, posters)
- What story theme to address with the storyboard (such as achieving objectives or educating listeners on a particular theme)
- Consistency (or intentional lack thereof) across the business units in the CICOP (such as with the use of a consistent ants theme for the Kumba Way strategy but not from mine to mine with their own locally-focused storyboards)
- How the storyboard story is told (for example: by a trained and dedicated storyteller; informally on a peer-group basis, or by a story-leader drawn from the ranks of management)
- Where, when and how the story would be listened to (issues such as: size and location of the story-listening group and language in which the story was to be received appropriate to the language of the listeners)
- Consistency in the use of the storyboard over time to convey the same or different messages (such as the multiple generations of storyboards or where multiple storyboards exist to tell different stories, such as at Grootegeluk and Zincor)
- The localization of the characters and themes (building in location-specific attributes, such as the reference to the marula tree in a part of the country)

where it grows and not mentioning it a part of the country where it does not grow)

- The consistency between local and corporate themes and objectives (such as the choice to consciously include or exclude the corporate flying ant character in local-produced storyboards).

A clearer understanding of these issues represents an opportunity to significantly raise the maturity level associated with the use of the storyboard as a tool and thus to contribute to an overall improvement in efforts to achieve world-class performance.

7.5.7 Training and education for stories and storytelling

In a number of areas associated specifically with storytelling (the development of the story; assisting in the role of the storyteller; training and education to improve the ability of the audience to listen to or receive the story), training and education may be required as for other elements of knowledge management strategy (see Table 3.6). The maturity rating for this question was 0.07 (see Table 6.4). This indicates that there is little recognition that specific training and education exists for the use of stories and storytelling as practices. This should be placed against the context that Kumba Resources management, based on statements made in a number of publications intended for both internal and external audiences, such as the Kumba Resources annual report (largely for an external audience) and 'Breaking Ground' (largely for an internal audience), has clearly stated and demonstrated the importance associated with education and training on a number of topics.

Perhaps the low level of assessment for the maturity identified in the area of storytelling is because of the low level of recognition overall for the role of storytelling in the business. Having said that, there were examples given (in particular at Grootegeluk) where a concerted effort had been made to train storytellers in the telling of the story, and another case (at Tshikondeni) where a course had been held to help listeners make the most of the storyboard tool. There seemed to be a recognition of the fact that training and education could be accomplished through a number of

mechanisms, such as coaching and mentoring rather than more formal, off-the-job approaches (such as classroom-based courses), such as for the storyteller's manual.

7.5.8 Measures of stories and storytelling

One of the critical issues in organisations is the ability to be able to measure the effectiveness of actions taken, as has been recognised in the area of knowledge management (see Table 3.6). The overall assessment of maturity for this question was 0.07 (see Table 6.4), indicating that there is no formal measurement of the value of the use of stories and storytelling taking place within the CICOP.

This low level of maturity was not contradicted through the later fieldwork in terms of a formal approach to how stories and storytelling were being used in the business. For an organisation that places such a significant emphasis on the use of measures for so many operational aspects of the business, it was interesting to see an almost total absence of measurement of almost any aspect of the use of storytelling.

If measures were to be implemented, they could be expected to include:

- Frequency (of the telling of the story)
- Size of audience (minimum, maximum, average)
- Duration of the storytelling session (minimum, maximum, average)
- Effectiveness of the storyteller (through feedback assessments)
- Receptivity of the listeners
- Overall impact of the story
- Relative impact of the story compared to other methods of communicating the message (such as written or oral presentations or the use of PowerPoint)
- The relative impact of one story compared to another.

The implementation of measures of success could therefore clearly contribute to the overall achievement of world-class performance (there is an (anonymous) old adage: you cannot manage what you cannot measure).

7.5.9 Success stories of the use of stories and storytelling

The importance of creating success stories for knowledge management has been recognised (see Table 3.6) and it would seem to make good sense to have stories about the successful use of stories and storytelling as practices for sharing knowledge. The overall assessment of maturity for this question was 0.47 (see Table 6.4). This indicates that there is only an informal approach within the CICOP of the success stories of the use of storytelling. From the outset of the empirical research, there was clear evidence of the anecdotal, informal success associated with storytelling across the business. Within the CICOP, the marula tree story had a certain amount of exposure, albeit at an informal level. Within certain of the locations and communities (such as Zincor refinery and Thabazimbi mine), there was a sense of pride of ownership and success associated with the use of stories and storytelling. Semi-structured interviews held, indicated however, that even for the Kumba Way ants approach, there was no formal attempt made to build on the success of the story approach.

Listed below (in alphabetical order) are some of the widely reported successes arising from using stories and storytelling (often accompanied by the use of a storyboard) identified during the research (through interviews, observation and artefacts gathered)⁵:

- Improvement in best practices transfer
- Better way to share success stories
- Clearer communication
- Constant reminder of what's been learned (visual impact of the board)
- Cost effective to make and use storyboards
- Deeper understanding through stories
- Ease of use/flexibility with the removable sections of the storyboard
- Easier to comprehend/learn/understand using stories
- Improved recall as visual impact of storyboards is high
- Improved speed of learning through using a story

⁵ These items are a synthesis of the data presented in sections 6.5.1 to 6.5.9.

- Improved teamwork through shared learning while gathered around a storyboard
- Integration of local and corporate themes possible through the use of appropriate storyboard graphics
- Listeners receive a common message when it is drawn on a storyboard
- People feel involved where a story is used
- Stories and storyboards help listeners to see the bigger picture
- Stories cross cultural boundaries
- Stories encourage improved business performance through a change in employee performance
- Stories ensure improved buy-in to corporate values and to new ideas
- Stories help to learn from past experience
- Stories provide a trigger for creativity
- Storyboard entertainment value high
- Storyboard use provides evidence of innovation
- Visual aspect of the storyboards helps to identify with the objectives presented.

Even though these items represented elements of success stories, they remained largely anecdotal (they had not been formally developed into success stories about the use of stories and storytelling). Some of these issues had been covered in ‘Breaking Ground’, but there they were reported in an article stating facts rather than being presented as a story (in the way a story was defined in section 3.2.1). If these anecdotes were to be transformed into stories, they would have the potential to improve the maturity of the use of stories and storytelling and hence contribute to world-class performance in the CICOP.

7.5.10 Benchmarking internally or externally

Once the use of stories and storytelling as practices for knowledge sharing become established, it becomes possible that some form of benchmarking might be introduced to enable the organisation (in this case the CICOP) to assess the effectiveness with

which these practices are being used (the principle of benchmarking in the knowledge management field was clearly indicated in the literature, see Table 3.6). The overall assessment of maturity for this question was 0.27 (see Table 6.4). This indicates that there is very little maturity of any benchmarking of the use stories and storytelling in the CICOP and what benchmarking there is happens informally.

The researcher observed that the subject of benchmarking arose in discussion on a number of occasions in relation to the performance of the CI function, where performance was measured in relation to the standards as documented in the CI codebook (see Appendix 2 for an extract relating to maturity). The use of stories and storytelling however did not feature in these benchmarking activities. There was no evidence found of any attempt, other than informally, to assess the extent to which the use of storytelling as practices had been and could be effective in sharing knowledge in the CICOP between one Kumba Resources location and another.

Were it to exist, such benchmarking could explore the following attributes of the use of storytelling:

- The story itself: the subject matter of the story, the relative importance of different stories to the achievement of objectives, such as the sharing of knowledge
- The telling of the story: in multiple aspects such as the skills of the storyteller, the media used, and the frequency at which storytelling is used
- The listeners: how well the story was being received, the extent to which knowledge was transferred, and the extent to which beneficial action resulted from the listeners experiencing the story-listening experience.

Part of the explanation for the low level of maturity in benchmarking of storytelling may be the lack of focus on storytelling or the awareness that storytelling is a practice that lends itself to benchmarking, either internally or with other organisations. This area of benchmarking the use of stories and storytelling represents another opportunity for the CICOP to improve its world-class performance.

7.5.11 Reward and recognition for use of stories and storytelling

Reward and recognition for participating in knowledge management has been recognised as a potentially important factor in the overall success of a knowledge management strategy (see Table 3.6). Reward and recognition comes in many varieties, from the formal to the informal; from reward in tangible means (such as financial reward) to intangible (such as recognition by a peer group). In the maturity assessment structured interviews and later in the fieldwork there was no indication that any serious attempt had been made to adopt an approach to the formalisation of reward and recognition in the use of storytelling (as indicated in Table 6.4, the maturity rating for this question was 0.13).

In the case of the marula tree story at Grootegeluk and other uses of storytelling (including, but not limited to, the use of storyboards) there was evidence of an informal approach to recognition, through such means as the 'Breaking Ground' publication (Kumba Resources, 2002b; 2003b; 2004b), which over a significant period in a number of issues carried articles (stories) on the use of storytelling.

A more formal approach to the use of reward and recognition in connection with the use of stories and storytelling represents an opportunity to further improve the world-class performance of the CICOP.

7.5.12 Stories and storytelling model

The maturity assessment structured and semi-structured interviews indicated a low level of awareness and use of a formal model of storytelling (as indicated in Table 6.4, the overall assessment of maturity for this question was 0.33). However, in later observation and through artefacts gathered (such as the storyboards in use as tools to support storytelling) the elements of the Sole (2002) model (see section 3.4.1) were evident in practice in the actual execution of the use of storytelling in the CICOP (that is, the model was being followed without the users being aware of it).

The Sole (2002) model which was selected for the purposes of this research as the overall framework of analysis (see section 3.4.1), will now be used as an analysis tool for the empirical data gathered.

Story-crafting

During the semi-structured and unstructured interviews as well as through observation and collection of artefacts, it was made clear that the stories told (specifically in conjunction with a storyboard) had been specially constructed as a joint effort between members of the CICOP (although most often restricted to a particular Kumba Resources location). This typically involved the core and full members who specified the content and messages to be contained in the stories, in conjunction with views expressed on a consultative basis by other peripheral and passive members of the community, including using the professional services of a production company for the actual development of the storyboards (in the role of a transactional member of the CICOP). This is as discussed by the SAI (2001) (see section 3.4.2) who identified that stories may be developed with the assistance of internal or external facilitators.

In terms of the literature reviewed, do the stories presented on the storyboards meet the criteria of being stories? Two of the sources that were mentioned in Table 3.2 will be used as analysis tools for the Kumba Resources storyboards and are presented in Table 7.3 and Table 7.4:

Story characteristics (BSI, 2003a)	Kumba Resources storyboards
The main character/setting	A mixture of human and non-human character types are used, in a setting appropriate to the location (for example the mountainous terrain surrounding Thabazimbi, the refinery buildings at Zincor)
The task and mission	Identifying the current situation and the desired future states (both the first and second generation storyboard used at Sishen, provide an excellent example)
The helpers	The many characters displayed in the storyboards are the helpers
The obstacle	The challenges identified (in particular in the strengths, weaknesses, opportunities and threats analysed in several of the boards) including the external environment (such as the external threats identified in the Grootegeluk storyboard)
The way the characters cope	Illustrated by the actions taken by a number of the characters on the storyboards (in individual scenes associated with the

with the obstacle	objectives identified on the storyboards)
The outcome	The achievement of the stated business goals or desired outcome or intent (such as on the Sishen first and second generation storyboards and the Thabazimbi example)

Table 7.3 Story characteristics according to BSI (2003a)

Story characteristics (Parkin, 2004)	Kumba Resources storyboards
Once upon a time -- the status quo	The opening scenes depicted on the storyboards (typically on the left-hand side of the board) including specific statements concerning the status quo (such as on the Zincor board)
Then one day -- the characters encountered some problem or challenge	The depiction of a series of challenges (some internal, some external) to the current situation interpreted as the difference between the current reality and future objectives
Because of this -- the story changes direction	The sense of a journey from the current situation into the future, by moving from left to right across the storyboard
The climax -- the characters deal with the challenge	The scenes depicting specific actions to achieve strategic objectives or strategic thrusts (Sishen, Thabazimbi, Zincor, Grootegeluk)
The resolution -- the results of the action	The completion of the journey to the right-hand side of the board either in stages (in line with the individual scenes depicted on the board and steps on the journey) or the journey as a whole (achievement of the future desired state or intent)
The moral -- their lives are changed	The graphical representation of achievement and satisfaction (through the depiction of smiling and celebrating characters)

Table 7.4 Story characteristics according to Parkin (2004)

Based on this analysis, the Kumba Resources CICOP storyboards are clearly ‘stories’ depicted in graphical format.

In addition, Hattersley (1997) identified three structural characteristics of a story in a knowledge management setting (as discussed in section 3.2.3): opening strategy, building strategy, concluding strategy. This approach can be clearly seen using the Zincor storyboard as an example (as shown in Figure 6.12). The story commences by

getting the listener's attention to an explanation of the current situation and the vision of Kumba Resources and Zincor as the starting point for the story. The story is then developed through a focus on the Zincor strategy and strategic thrusts, building towards a conclusion. The third element, on the right-hand side of the storyboard, highlights the future intent of the organisation.

This approach to the development of the story is in stark contrast to the Snowden (1999a) model (see Table 3.5 and section 3.4.1) which starts with the gathering of anecdotes within the organisation and results in the final construction of a story. In the approach adopted by Kumba Resources CICOP, the purpose of the story and flow of the story are determined by the organisation where the anecdotes are introduced into the story both by the storyteller and the story listener (to be discussed later in this section).

Sole (2002) (see Table 3.5) advised that the first part of the story model includes a focus aimed at the design of the story, specifically looking at complexity and relevance to the audience. The development of the marula tree story at Grootegeluk mine is an indication that the complexity entailed in at least one of the storyboards (the main Grootegeluk mine storyboard) was too great for the intended audience, at least in the opinion of some of the members of the CICOP at that location. Hence the development of the marula tree story.

The storyboards used in Kumba Resources, although not large in number (in terms of versions or editions, although widely dispersed at the locations where they are used), do have the potential to be used in many other areas of Kumba Resources business, supporting a variety of objectives. However, at present there is no central coordination of which stories or storyboards exist, for what purpose they are used and how and when they are introduced, updated and eventually retired.

Story-telling

A choice exists as to whether to have a story told by a dedicated (although not necessarily professional) storyteller or to leave the responsibility for telling the story

to a member of the organisation or team involved in the story (as was discussed in section 3.4.3), or a mixture of the two alternatives.

In the case of the Kumba Resources CICOP, both alternatives have been used. In some cases (such as at Sishen and Zincor) the line manager (see, for example section 6.5.8.3) takes responsibility for the telling of the story, whilst at Grootegeluk mine a particular team of people within the CICOP at the mine has been made responsible for the telling of the marula tree story.

Whether or not the storyteller in Kumba Resources is a dedicated person, he or she has access to a manual that can assist them in preparing to tell the story and even to make notes carrying feedback on the story as it is told. In addition, many of the storytellers in the various locations are not only known to the audience (because they are either colleagues or members of the management team) but are also able to address the audience in a language with which they are familiar (whether that is English, Afrikaans or a variety of African indigenous languages). Boje (1991) (see section 3.4.3) identified that some coaching or training of the storyteller may be required, and evidence was found during the research project that Kumba Resources takes this approach. A key element of the use of stories and storytelling in the CICOP was the use of storyboards and tools to support oral storytelling.

The designs of the storyboards have made them easy to use. These designs include the use of colour, interesting settings aligned to the specific Kumba Resources location in which the stories are to be told (such as the geography, vegetation and equipment depicted in the graphics), as well as a particularly useful device in the removable story section which serves two purposes: to allow the story to be told in an episodic way, helping to build the tension (as recommended by Hattersley (1997), see Table 3.2), as well as allowing for the story to be updated (such as accommodating changes to specific objectives).

In addition, care has been taken to ensure the neutrality of the characters depicted, so as to avoid any offence being caused in the minds of the audience. The symbolic representations, including the selection of a mixture of human and non-human character types, have been made in line with the preferences of the Kumba Resources

representatives on the development team. This is in line with expectations of Sole (2002) who advised careful consideration of the audience in the development and telling of the story (see section 3.4.2). As was mentioned in section 3.4.3., BSI (2003a:61) advised that, the “key to the art of storytelling is to trigger dramatic and memorable pictures in the minds of the listeners.” With the storyboards at Kumba Resources, this principle has been taken further by presenting dramatic and memorable pictures to the listeners at the time that the story is being told. This is in line with the advice of a number of other authors (see section 3.4.3) who identified that the telling of stories can be usefully accompanied by a number of props⁶.

Story-listening

The third element of the model proposed by Sole (2002) (see section 3.4.4) is story-listening. This includes monitoring the reception of the story, and using feedback for future story development.

Denning (2000, 2001, 2002, 2004a, 2004b) and Swap *et al.* (2001) (see section 3.4.4) recommended that the audience must be able to identify with the story as it is told. In the case of the Kumba Resources CICOP storytelling, this has been achieved by tailoring the content of the story to the level at which the listener is expected to operate. An example of this is found by providing visual links between the listeners’ normal working environment and the messages containing the stories (see Figure 6.6 as an example of this).

There was little in the literature regarding the optimum size of a story listening group. In the case of Kumba Resources, a number of different group sizes have been used for the telling of the stories according to the operational setting involved. Group sizes varied according to the location, from under twenty to close to fifty (see sections 6.5.5.3 and 6.5.8.3).

In terms of the timing for storytelling, Kaye and Jacobson (1999) (as discussed in section 3.4.3) identified three major classes of storytelling opportunity, all of which are used at Kumba Resources: spontaneous (casual or opportunistic) storytelling is

⁶ For a more detailed profile of the storyboards, see Appendix 3.

facilitated on a peer-to-peer basis by leaving the storyboards on permanent display in public areas so that individuals working in that area can pause in front of the story board to discuss the story as and when they wish. Existing (regular, ongoing occurrences during which stories are told) opportunities are used during management meetings, performance reviews, and other forms of regular ongoing management communication, and thirdly deliberate opportunities for storytelling are created by scheduling the telling of the story on the storyboard specifically for that purpose (this is where the rollout of the story takes place initially and with the periodic retelling of the story to update listeners in terms of progress being made on the ‘story journey’).

There was significant anecdotal evidence collected during the semi-structured and unstructured interviews as well as from analysing reports appearing in the Kumba Resources internal publication (‘Breaking Ground’) that the use of storyboards as a tool to assist in knowledge sharing has been a great success. However, there was no evidence that any formal effort has been taken to assess the use of storytelling as a practice for knowledge sharing, nor any effort to modify or improve the way in which stories are told (assess whether or not using the storyboard in the future).

7.5.13 Capture and reuse of stories

More than one author has identified that it is possible to capture and reuse stories in a number of different ways (see Table 3.6) and the ability to do so becomes more important as the reliance of the organisation on the use of stories and storytelling to carry knowledge increases. However, the situation in the CICOP was relatively immature in this respect (as indicated in Table 6.4, the maturity rating for this topic was 0.53).

The use of storyboards is itself a useful mechanism to capture the story to be told. Through the representation of the characters and the setting of individual scenes in the story depicted on the storyboard, the essential elements of the story are captured. However, there is still a good deal of flexibility inherent in such an approach, as the actual relating of the story depicted on the storyboard is subject to interpretation by

whoever may be telling the story, as well as the way in which responses from the listeners are handled.

A more complete form of capture would be represented by having a supporting document (similar to a script), which would allow the structure of the story depicted on the storyboard to be further supported (this is akin to the storyteller's manual which was used).

The fact that the stories depicted on the various storyboards encountered in the fieldwork exist is testimony to their longevity and their potential for re-use. However, there was no evidence from the case study that the stories were being captured other than at the locations in which they were originally being used (that is, a central story database did not exist). Therefore there exists the possibility that, over time, the stories may be lost for a variety of reasons: where the story owner (or custodian) leaves the organisation, taking the knowledge of the story with them; and where the story's useful life has been exhausted in the current instance and, as a result, is discarded as being of no further use (regardless as to whether or not it may be of use again at some point in the future should similar circumstances arise or, indeed, is still of use elsewhere in the organisation). There was certainly no evidence that a central or co-ordinated approach was being taken to capture and reuse the stories depicted on the storyboards.

7.5.14 Catalogue of stories maintained

If the stories identified, created, told and retold are to be captured for reuse then, according to the literature reviewed, some form of cataloguing system becomes desirable to allow for easier retrieval and appropriate application (see Table 3.6). However, in the case of the CICOP this issue of cataloguing stories has largely not been addressed (the maturity rating for this question was 0.13 – see Table 6.4). The only example found in the research of a formal approach to documenting and cataloguing stories was in the Cynefin project, although at the close of the empirical research that particular project had not been completed (see section 6.5.1.2).

Such a focus on maintaining a catalogue of stories might include a number of elements:

- Basic identification of each story (with a number of common data elements for each story such as name, description, creation date, owner, format of story, when last updated and so on)
- Creation of multiple indices to assist with the retrieval of the stories
- Creation of a cross-indexing of stories to indicate where stories serving a similar purpose, meeting a similar need or carrying a similar message exist
- A record of the search and retrieval of stories from the catalogue (indicating the potential for use of the stories once retrieved)
- Annotation of the stories to indicate the success of the stories where used
- A record of the formats in which the story exists (such as a storyboard; with industrial theatre; or by oral means only)
- Classification under a story-labelling scheme (categorised in a number of possible ways)
- A record of whether or not the story has been translated and, if so, into which language.

7.5.15 Use of stories and storytelling internally and externally

It is possible to use stories and storytelling both inside the organisational unit (in this case the CICOP) as well as outside the organisation (as recognised in the literature, see Table 3.6). The ability to use stories and storytelling both internally and externally may increase not only the value of the stories but also the ability to share knowledge on a broader front (more widely across the organisation or between external organisations). However, the overall assessment of maturity for this question was 0.73, representing an informal approach in the CICOP.

The empirical data revealed that the focus on sharing knowledge was within locations, such as in the case of storytelling (supported by the use of storyboards) in use at Thabazimbi, Sishen, Grootegeeluk, Zincor and Leeuwpan. There was no clear plan to take the stories used in the CICOP and ensure they were shared on a systematic basis

between the various members of the CICOP (across locations other than where the story originated). Nor was there a plan to ensure that they were shared more widely throughout other organisational units in Kumba Resources, nor outside of the company as a whole. This represents another area where a more formal approach could significantly contribute to an overall improvement in pursuit of world-class performance.

7.5.16 Role of technology in stories and storytelling

One of the main considerations when developing a knowledge management strategy includes a decision on the role of technology (see Table 3.6) and this also applies to the use of stories and storytelling as knowledge sharing practices. However, in the case of the CICOP only an informal approach to the use of technology in the support of stories and storytelling as knowledge sharing practices was found (as indicated in Table 6.4, the maturity rating for this question was 0.60).

Kumba Resources represents an interesting case of an organisation that is made up of two groups on either side of the digital divide: those who are knowledge workers, widely equipped with all the technology-enabled devices so common in the businesses of the 21st century (most commonplace of which are the mobile phone and the personal computer) and those who have either little or no access to the world of technology in their day-to-day work environment (although many of the Kumba Resources operational people may be cell-phone enabled in their private capacity at an individual level, this does not mean that they are so equipped for business purposes).

This presents an interesting situation not only for both the past and the present but also for possible future scenarios. In the past, there was little, if any, access to other than the most basic and traditional forms of technology (in other words, excluding information technology) to support knowledge sharing at whatever level in organisations. This situation held true right up to the advent of the personal computer in the workplace, which for many organisations, certainly in South Africa, occurred

only fifteen to twenty years ago (with the widespread introduction of the personal computer to South Africa from the mid-1980s).

Since then, a multiplicity of technology tools have become available, such as the personal computer itself and a variety of associated tools such as electronic mail and access to the World Wide Web (and all that it entails). These tools have themselves raised the possibility of granting access to many, if not all, role players in business to information technology and the possibilities for improved communication that the technology offers.

In the case of Kumba Resources CICOP, that now opens the door to the use of technology in support of storytelling just as storytelling itself is used to support the sharing of knowledge. This use is limited by a number of factors, including:

- Access to the technology
- Ability to use the technology
- Establishing the work patterns which include the use of the technology (as opposed to just the ability to use the technology)
- Identifying applications for the use of the technology (such as for storytelling).

Kumba Resources has at its disposal a number of such technology tools. Members of the CICOP reported having access to such tools as email; internet; intranet; and collaboration tools (specifically Microsoft SharePoint) (see section 6.3.4 and 6.3.5). The access to such tools need not be limited to only those with permanent, dedicated access through their own devices, but could be enhanced through shared facilities in the workplace at communal areas (such as cafeteria and restroom facilities) to enable a broader audience to be reached.

Although in Kumba Resources there was some use made of IT in support of the Kumba Way ants posters initiative (specifically with a screensaver application and PowerPoint presentations) there was little in the way of evidence of a more formal approach in support of storytelling, either in the maturity assessment structured

interviews or in the later fieldwork research (with the exception of Zincor who had some personal computer-based material).

The approach taken by Kumba Resources in the development and use of storyboards would appear to lend itself well to the use of software tools to assist in the dissemination of stories. The natural extension of this approach would be to look at other possible media, such as the availability of audio and animated multi-media as well as text and non-animated graphics.

With the rapid advance of low-cost, mobile devices, it is possible to foresee, in the not too distant future, a time when a variety of media options (including such vehicles as music compact discs and digital video discs) might be used in the support of digitally-supported storytelling. Increasingly, this digital support could expect to become both interactive (with the story being developed in line with the participation of the listener / viewer) but also for distribution to a variety of increasingly low-cost devices such as cellular telephones and Personal Digital Assistants. In fact, the role of technology in support of storytelling probably represents a significant area of future research in itself.

7.5.17 Understanding of where not to use stories and storytelling

It has been recognised in the literature that the indiscriminate use of stories and storytelling may not be in the best interests of the organisation (see section 3.3.3 and Table 3.6). This suggests that there should be a clear understanding of where to and where not to use stories and storytelling as a practice for knowledge sharing. In the case of the CICOP, there was a low level of maturity for the recognition of where the use of a story is appropriate or inappropriate (the maturity rating for this question was 0.20).

Circumstances where it might be inappropriate to use stories and storytelling include:

- In cases of extreme urgency where there is no time to use storytelling (such as during an industrial accidents)

- Where there is known resistance to storytelling (either on the part of the storyteller or the listeners)
- Where no suitable story has been developed (see section 3.3.3).

In the maturity assessment structured interviews and later in the fieldwork there was no hard evidence that a clear understanding of when not to use a story existed, other than the intuitive and informal sense of appropriateness. Should such an ability to successfully identify the appropriate time, place and mechanism for the use of stories and storytelling exist, then the effectiveness of the use of stories and storytelling would naturally rise as a consequence, as would the potential for an increase in world-class performance for the CICOP as a whole.

7.5.18 Stories and storytelling community of practice

The principle of using a community of practice as a practice to assist in the effective implementation of a knowledge management approach in the organisation appears now to be well-established (see section 2.3.7 and Table 3.6). The COP approach can be used in supporting storytelling initiatives in the organisation, in effect, creating a community of story-crafters, storytellers and story listeners (along with other such possible roles, such as for those who design and catalogue stories). For the CICOP, the overall assessment of maturity for this question was 0.00. This indicates that there is no community of practice devoted to storytelling in place, even at an informal level.

It is interesting to note that while anecdotal evidence (as presented at various points through section 6.5.1 to 6.5.9) found in the empirical data indicates the success of the use of stories and storytelling along with the widespread use of the COP in Kumba Resources as a whole (see section 6.3.4), these two concepts have not been brought together. If they were, the potential exists to make a further contribution to improved, world-class performance, through the forming of a “Storytelling COP”.

7.5.19 Stories and storytelling value rating scale

If an organisation is to make a significant commitment to the use of stories and storytelling then it seems reasonable that it should be possible to rate the value of these stories (collected, created, used and reused) to support more effective use of stories and storytelling as a practice. However, during the non-empirical phase of the research no specific references could be found to the use of such a value rating scale. For the purposes of this research project, however, this issue was added to the list of maturity assessment items by the researcher, for inclusion in the research instrument for use during the structured interviews. In the empirical data gathered it was not possible through either the maturity assessment structured interviews or the following fieldwork to identify anything other than an informal approach to the rating of the value of stories and the telling of the stories (the maturity rating for this question was 0.13).

Should such a value scale be created, it might address a number of issues, such as:

- Value to one or more stakeholders in terms of the success of communicating a particular message
- Value to the listener(s) in terms of the ability to understand a particular message (such as knowledge to be shared)
- Value in terms of the relative value of the impact between stories (paired value ratings for stories of the same or similar themes)
- An overall ranking of stories and their effectiveness for the purpose of agreeing future funding for the development of the story in future
- Value in terms of the use of a story rather than an alternate (perhaps more traditional tool or technique) for communicating the message concerned.

It is suggested that the adoption of such a value rating system and its use may represent a further useful contribution to world-class performance.

7.5.20 Summary of the use of stories and storytelling in CICOP

No single area of those assessed (see Appendix 1, Part Three, for the full list, as covered in sections 7.5.2 to 7.5.19) reached a score as high as 2.0. Based on the rating scale used (see Appendix 1, Part Four), this represents an overall informal approach to the use of stories and storytelling in the CICOP. This also falls well short of the maximum score on the scale (5.0) in each and all areas.

If these ratings were to have been taken at face value, as the only means of assessing the use of stories and storytelling in the CICOP, it might easily have been assumed that those practices were little used or nonexistent within the CICOP. However, through the rest of the empirical data gathering that followed the structured maturity assessments (the semi-structured and unstructured interviews, observation and gathering of artefacts), it became clear that the use of stories and storytelling to support knowledge sharing in the CICOP was relatively widespread. In addition, the further investigation conducted as part of the empirical research identified extensive use of storyboards as part of the toolset for knowledge sharing.

The analysis revealed that at every level (Kumba Resources as a whole; the Kumba Resources knowledge management function, and the Kumba Resources CICOP) there is an objective to achieve and sustain world-class performance. How that performance is defined has not been generally agreed in the literature (see section 4.2.1) and thus the researcher proposed a model of world-class performance for the purposes of this research project against which Kumba Resources could be positioned.

In addition, the world-class performance model was applied specifically to the use of stories and storytelling in the CICOP. The aspects to be assessed and analysed were identified through the literature search (the non-empirical phase of the research) and, as a result, the research instrument was developed. The application of the research instrument to the CICOP has allowed the following:

- The identification of a specific maturity rating through structured interviews
- Additional data to be gathered to further explore the use of stories and storytelling, using the maturity rating as a starting point.

Overall, the relatively low level of maturity in the areas assessed provides an opportunity for a significant improvement in world-class performance of the use of stories and storytelling in the CICOP, as follows:

- Through identifying and using best practices: for example, the use of storyboards to support oral storytelling
- Benchmarking the use of stories and storytelling in the CICOP (this is taking place informally at present)
- Applying recognised local or international standards (this is not possible as they do not currently exist)
- Compliance with quality frameworks and objectives (this requires a definition of the meaning of quality in the field of stories and storytelling, which has yet to take place)
- Applying the capability maturity approach to the use of stories and storytelling in the CICOP (this has happened as an assessment and analytical approach through this research, but could also be used as a performance improvement approach in the CICOP).

In summary, the potential exists for the CICOP to improve the level of world-class performance in those aspects that have been analysed in this chapter.

7.6 Summary

The analysis presented in this chapter has demonstrated that the Kumba Resources CICOP presents an interesting case in the use of stories and storytelling as practices for the sharing of knowledge in that organisation.

Overall, the analysis conducted in this chapter shows the following:

- Kumba Resources as a whole has a commitment to many of the characteristics of an organisation that is world-class when judged by the world-class performance framework that had been proposed in this research project
- The Kumba Resources Knowledge Management function is well positioned to fulfil its role in supporting the organisation as a whole, in furthering the implementation of knowledge management and displays a number of characteristics of being a world-class knowledge management team
- The Kumba Resources CICOP provided a useful insight into the functioning of one of the communities of practice in Kumba Resources. The research focused on the use of stories and storytelling in the CICOP to share knowledge. Although the overall level of maturity identified during the research project in terms of knowledge sharing and the use of stories and storytelling was at the informal level, it should be seen as providing a useful starting point in terms of better understanding the potential for achieving a more mature approach within this community of practice, and thus contributing to world-class performance for the CICOP and Kumba Resources as a whole. The potential also exists that the lessons learned from this analysis may extend to other communities of practice within Kumba Resources and possibly as useful learning points for other organisations who are planning on making use of stories for knowledge sharing, particularly where the use of storyboards is being considered⁷.

The objective of this chapter was to analyse the data which was gathered during the empirical phase of the research and that has already been presented in Chapter 6. Having completed that analysis, the next chapter will be devoted to some final conclusions, recommended actions and possible areas for future research.

⁷ These issues will be explored further in the next chapter.

8 Conclusions and recommendations

8.1 Introduction

This chapter revisits the main research problem and sub-problems as outlined in Chapter 1, presents a number of recommendations arising from the research, and then indicates possible areas for further research identified during this project.

8.2 Answering the research problem

The research problem was outlined in Chapter 1, and is revisited here in the light of the results of the non-empirical and empirical research conducted during the project. The results of that research have been presented in Chapters 2, 3, 4 (the non-empirical literature review), Chapter 6 (empirical data findings), and Chapter 7 (empirical data analysis).

8.2.1 Main research problem

The main research problem was, “To gain an understanding of the potential of stories and storytelling as knowledge sharing practices to enhance world-class performance within a particular community at Kumba Resources.”

The answer to this problem will be measured by the extent to which the following sub-problems were achieved. The details of the answer to each sub-problem are contained in the relevant chapters, and the key learning points contributing to gaining an understanding in each area will now be reviewed.

8.2.2 Research sub-problem 1

This research sub-problem was stated (see section 1.5.1) as: “What can be learned from a non-empirical investigation into knowledge management as a context for the research project?”

The approach used in the answering of this research problem was to carry out a structured search of the management literature relating to the field of knowledge management. As a result of the investigation, the researcher was able to present an understanding of the nature of knowledge, knowledge management and the relationship between knowledge management and strategy. The results of this research indicated a wide range of views in the literature in each of the three main areas investigated. It became clear that there was no consistent, widely adopted definition for knowledge (see section 2.2.1). What was common, however, was the wide recognition given to the potential for the achievement of corporate objectives where knowledge is employed as a management resource (as discussed in section 2.2.2).

The lack of common agreement in the literature extended to knowledge management, both in terms of definition and its application in organisations. Through the literature review, however, a clearer understanding was gained about the nature of knowledge (see section 2.2) and knowledge management (sections 2.3.), and an analysis and synthesis was presented of a number of aspects of the field (see sections 2.3.1 to 2.3.7).

The next main area of enquiry into the context for the research was addressed in section 2.4 (knowledge management and strategy). The non-empirical research here provided an in-depth understanding of the relationship between knowledge management strategy and business strategy, as well as the possible approaches to the development and implementation of a knowledge management strategy.

In summary, this sub-problem was answered both in the conduct of the research itself, as well as in the documentation of the research in Chapter 2. The output from this

research was used to help to frame the context for the research as a whole, as well as contributing to the development and use of the research instrument and later empirical research activities (including data gathering and analysis).

8.2.3 Research sub-problem 2

The second sub-problem was defined in section 1.5.2 as, “What can be learned from a non-empirical investigation into the use of stories and storytelling as knowledge sharing practices as part of a knowledge management strategy as a context for the research project?”

Chapter 3 documented the results of the non-empirical research, which investigated four main aspects relating to the use of stories and storytelling. First, was an understanding of the origins and definition, formats and structures of stories. Next, the literature review investigated the use, benefits and pitfalls associated with the use of stories and storytelling as part of a knowledge management strategy, with a specific focus on the sharing of knowledge. The literature review then also identified a number of proposed models for the use of stories and storytelling and included the selection of one of these models as part of the analytical framework to be used in the empirical research to be conducted as part of this project. The final element of the answer to this sub-problem was documented in section 3.5, which investigated aspects of the implementation of stories and storytelling as part of a knowledge management strategy.

Overall, the findings of this part of the non-empirical research led to the following learning points in that stories and storytelling:

- Have been in use for thousands of years as a means of communication
- Have been recognised for at least the past thirty years as a powerful means of communication in organisations
- Have been recognised since the early days of the knowledge management movement as a powerful way to share knowledge in organisations
- Come in many different formats and structures

- May serve many different purposes (including being related to knowledge management)
- Offer many potential benefits when sharing of knowledge is being implemented in organisations
- May have circumstances where stories and storytelling should not be used to share knowledge
- May be usefully supported by a model or framework that supports the development and deployment of the use of stories and storytelling.

As in the case of the non-empirical research for sub-problem 1, the output of this part of the research, into the use of stories and storytelling as knowledge sharing practices as part of a knowledge management strategy, was used as input to the assessment and analysis of the specific situation in the case study organisation (the Kumba Resources CICOP).

8.2.4 Research sub-problem 3

The next research sub-problem presented was: “What can be learned from a non-empirical investigation into the nature of world-class performance as a context for the research project?”

An initial review of the literature indicated that there was a lack of clarity as to the meaning of the term *world-class performance* and, as a result, the researcher developed a proposed framework for world-class performance that was presented in Chapter 4.

After a brief review of the nature of world-class performance, the elements of the proposed framework were investigated in turn: best practices; benchmarking; standards; quality management, and capability maturity models. This framework, once developed through the non-empirical research documented in Chapter 4, was later used as part of the analytical approach to the interpretation of the case study data findings and analysis (as presented in Chapter 6 and 7). This research sub-problem

was therefore achieved both through the non-empirical investigation itself as well as the documentation presented in Chapter 4.

The key learning points to arise from this non-empirical research were that:

- The term *world-class performance* is generally not well defined in the literature; where it is defined there is no general agreement that the definition should be used.
- Each of the elements of the proposed world-class performance framework is well defined for general use: best practices; benchmarking; standards; quality, and capability maturity.
- Despite the significant volume of management literature which debates these topics, they cannot all be directly applied to the use of stories and storytelling as knowledge management practices, as there is relatively little specific application of these concepts in the area of these practices, or because the concepts have not been sufficiently defined.
- The most directly applicable of the elements of the proposed world-class performance framework in the context of this research is the capability maturity model, about which a significant amount of discussion has taken place in the literature.

The output of this non-empirical research was also used to help to frame the research concepts and methods, the specific structured interview research instrument, the subsequent analysis of empirical data, and lastly, the recommendations to the case study organisation contained in this chapter (see section 8.3).

8.2.5 Research sub-problem 4

Having completed the non-empirical phase of the research, and given the overall research problem, the next research sub-problem, as defined in section 1.5.4, could be addressed: “What can be learned from the use of stories and storytelling to share knowledge as part of a knowledge management strategy within the case study organisation?”

This research sub-problem was at the heart of the empirical research activities, and was achieved through the use of the research methodology as defined in Chapter 5. This methodology was executed through the use of a case study investigation (within a specific community in Kumba Resources), using mainly qualitative techniques. The empirical research included the use of three primary data gathering mechanisms: interviews (structured, semi-structured, and unstructured); observation, and gathering of artefacts. The results of these data gathering activities were presented in Chapter 6, and analysed in Chapter 7. The empirical research was conducted using output from the three areas of non-empirical research into the topics of: knowledge management; stories and storytelling, and world-class performance.

The key learning points arising from the research are that:

- Knowledge management is a concept that was well defined in the case study organisation (at three levels: Kumba Resources as a whole; Kumba Resources knowledge management function, and the Kumba Resources CICOP).
- The concept of the use of stories and storytelling was recognised at all three levels of the organisation.
- The concept of world-class performance was understood (if not always well-defined) and part of the objectives at all three levels of the organisation.
- Stories and storytelling were in active, planned use in the CICOP during the period of the empirical research project.
- There was an overall low level of maturity in the CICOP of both the practice of knowledge sharing in general and, more specifically, the use of stories and storytelling as part of the CICOP knowledge sharing strategy.
- The use of stories and storytelling was inconsistently applied across the CICOP (a characteristic of the low level of maturity).
- Use was made of a specific tool to support knowledge sharing through storytelling (the storyboard) that has had relatively little coverage in the management literature.

With specific reference to the model of world-class performance in relation to stories and storytelling in the CICOP:

- That the transfer of best practices was largely driven on an informal basis (a characteristic of a low level of maturity)
- That benchmarking of the use of stories and storytelling in the CICOP was little in evidence and where it was in evidence was informal
- That the absence of recognised standards in the broader knowledge management field resulted in no use of standards associated with stories and storytelling in the CICOP
- That although the concept of quality management was well-established in the Kumba Resources business as a whole, as well as in other CICOP activities, very few specific actions had been taken to apply this concept to the use of stories and storytelling in the CICOP
- That the concept of capability maturity was in current use in the CICOP but that this concept had also not been applied to the use of stories and storytelling in the CICOP
- That when the research instrument was used to help to gather empirical data (through a structured maturity assessment) the overall assessment in eighteen areas measured, failed to reach level 2.0 (on a scale of 0 to 5.0) in any one area, indicating an overall informal approach to the use of stories and storytelling in the CICOP.

The output from the data gathering activities was used as the input to the data analysis; the output from the data analysis will be used as the input to answer research sub-problem 5 (in section 8.3).

8.2.6 Research sub-problem 5

The last of the five research sub-problems was outlined in section 1.5.5: “How might the performance of the organisation in terms of the use of stories and storytelling be enhanced as a result of the application of the findings from the non-empirical research combined with the findings of the empirical research?”

The answer to this sub-problem is achieved through the presentation of the recommendations contained in this chapter (see section 8.3).

8.2.7 Answering the overall research problem

The answering of the overall research problem can be measured by the extent to which the five sub-problems have been answered through the two primary aspects of the research project have been delivered: the non-empirical and empirical phases. The non-empirical research has been documented in Chapters 2, 3, 4 and the results of this research were used to help to define and execute the empirical research that has been documented in Chapters 6 and 7.

In summary, there exists significant potential to increase the level of maturity in the use of stories and storytelling in the CICOP as a contributor to world-class performance, within the CICOP, and therefore, within the organisation as a whole. In addition to gaining an understanding of the potential of stories and storytelling as knowledge sharing practices to enhance world-class performance within a particular community (the CICOP) at Kumba Resources, there was also the opportunity to make a number of recommendations arising from the analysis of the research data findings. These recommendations are presented in section 8.3.

In addition, there is the potential that the scope for improved performance may be applied in other parts of Kumba Resources business, although this would be best addressed by further research (see section 8.4).

8.3 Recommendations

The recommendations presented here are made specifically for the use of stories and storytelling in the Kumba Resources CICOP. The documentation of these recommendations and inclusion into the final research report are in line with the suggestions of a number of authors as discussed in section 5.4.2, and contribute to

answering sub-problem 5, as discussed in section 8.2.6. The sequence which will be used in presenting the recommendations in this section is that of the topics included in the original research instrument (see Appendix 1).

The data findings and data analysis (see Chapters 6 and 7) were framed in terms of the application of world-class performance and specifically the capability maturity scale as included in the research instrument (see Appendix 1). In overall terms, the level of maturity for each of the following parameters measured in the empirical data gathering activities was low (below 2 on a scale of from 0 to 5, see Table 6.4), and the subsequent investigation through the semi-structured and unstructured interviews, observation and collection of artefacts (as covered in Chapter 6 and analysed in Chapter 7) did little to alter these maturity ratings. In general terms, therefore, the recommendations that follow are intended to help the Kumba Resources CICOP increase their maturity level on the rating scale as a contributor to an improvement in world-class performance, specifically in the use of stories and storytelling as knowledge sharing practices.

It is also suggested that the broader context within Kumba Resources (the organisation itself and the knowledge management function, which provided the internal context for the research, as discussed in sections 6.2 and 6.3) could benefit from further application of the world-class framework (as outlined in Chapter 4) as an analytical/diagnostic tool and for helping to identify a road-map for the future and sustained achievement of world-class performance (see section 8.4).

8.3.1 Ownership of stories and storytelling

The necessity for ownership of the elements of a knowledge management strategy was identified in the literature review (see Table 3.6). Clear ownership of stories and storytelling used as part of a knowledge management strategy can assist in the effective use of those stories to support knowledge sharing.

It is therefore recommended that, in seeking to leverage the use of stories and storytelling, the Kumba Resources CICOP should ensure that there is clear ownership,

both locally where the stories are developed and used, as well as more broadly (consistently) across the organisation.

8.3.2 Executive sponsorship of the use of stories and storytelling

Effective implementation of a knowledge management strategy will be more likely where there is clear executive sponsorship (leadership) (see Table 3.6). This also applies to the use of stories and storytelling, when used as an element of that strategy.

It is therefore recommended that, as the Kumba Resources CICOP seek to improve the effectiveness of the use of stories and storytelling, they ensure that they have clear and consistent executive sponsorship across the organisation, rather than at the level of the individual operational sites as at present.

8.3.3 Objectives for stories and storytelling

It is clearly recommended in the literature that was reviewed (see Table 3.6), that objectives should be set for the use of any knowledge management practice, such as the use of stories and storytelling. The more clearly defined and consistent these objectives are, including their measurement, the more likely they are to be achieved.

It is therefore recommended that, when embarking upon further use of stories and storytelling for knowledge sharing, the Kumba Resources CICOP should have clearly defined, documented and measurable objectives, appropriate to the purpose for which the stories are to be told.

8.3.4 Funding of stories and storytelling

Knowledge management initiatives are more likely to be successful where there is an appropriate level of funding (see Table 3.6) and given the wide range of choice which exists in the formats in which storytelling can take place, significant funding may or

may not be required depending on the type of storytelling selected (such as the difference between oral storytelling and the use of professional actors in an industrial theatre implementation).

It is therefore recommended that, when considering further use of stories, the Kumba Resources CICOP ensure that appropriate funding is in place to support the development, initial implementation and ongoing support for the use of this management practice. In addition, in seeking a higher level of maturity, the Kumba Resources CICOP should ensure consistency, setting of measurable objectives and the proactive management of funding for stories and storytelling.

8.3.5 Tools to be used for stories and storytelling

As was identified in the literature review (see Table 2.8 and Table 3.1) there are a number of different tools which may be used to support the use of stories and storytelling for knowledge sharing¹.

It is recommended that, the Kumba Resources CICOP, when considering future use of stories and storytelling, ensure that they are making best use of the various tools available (such as different modes of delivery, use of multimedia, industrial theatre etc) taking into account the objectives for the knowledge sharing activities.

8.3.6 Training and education for stories and storytelling

The need for appropriate training and education as part of the implementation of a knowledge management strategy was identified in the literature (see Table 3.6).

It is recommended that, the Kumba Resources CICOP should, in future, carefully evaluate what training and education is required (for the development of the stories;

¹ The term ‘tools and techniques’ although used in the original research instrument was later refined in Chapter 2 (see section 2.3.7). Thus stories and storytelling are recognised as *practices* where a range of *tools* may be used to support the practice.

telling of the stories, and listening to the stories) and achieve a degree of consistency across the Kumba Resources CICOP in so doing.

8.3.7 Measures of stories and storytelling

Several authors surveyed in the literature identified the importance of putting in place measures for the effectiveness of a knowledge management strategy (see Table 3.6).

In the case study empirical research, the subject of measuring the effectiveness of the use of stories and storytelling was little discussed. However, it is recommended that, to ensure adequate management support and funding (both in financial terms and the commitment of appropriate levels of human resources), the Kumba Resources CICOP ensure that plans are put in place to measure the effectiveness of the use of stories and storytelling. Such measures should include:

- Frequency (of the telling of the story)
- Size of audience (minimum, maximum, average)
- Duration of the storytelling session (minimum, maximum, average)
- Effectiveness of the storyteller (through feedback assessments)
- Receptivity of the listeners
- Overall impact of the story
- Relative impact of the story compared to other methods of communicating the message (such as written or oral presentations or industrial theatre)²
- Relative impact of one story compared to another.

8.3.8 Success stories of stories and storytelling

One of the most powerful ways of supporting any element of a knowledge management strategy is to generate a success story, according to a number of authors identified in the literature (see Table 3.6).

² The various alternatives were identified in section 3.2.2 and Table 3.1.

It is therefore recommended that, the Kumba Resources CICOP ensure that these success stories are identified and used consistently across the organisation, and that they are maintained and their effectiveness is measured.

8.3.9 Benchmarking internally or externally

One of the elements of the proposed world-class performance framework (as presented in Chapter 4) was the use of benchmarking and this issue has also been identified in the knowledge management literature (see Table 3.6).

It is therefore recommended that, the Kumba Resources CICOP, in seeking to improve the effectiveness of their use of stories and storytelling, should explore the benefits of benchmarking their efforts, both internally as well as externally with other organisations. In seeking greater levels of maturity through their benchmarking efforts, they should seek to establish a degree of consistency across the organisation in terms of the use of benchmarking as well as setting specific and measurable objectives for the benchmarking activities.

8.3.10 Reward and recognition for use of stories and storytelling

Reward and recognition can take many forms, including financial and non-financial incentives. Whatever forms such rewards might take, their importance has been recognised in the literature when it comes to implementing knowledge management (see Table 3.6).

It is recommended that, the Kumba Resources CICOP, in seeking to further the use of stories and storytelling, should investigate the appropriate reward and recognition for these practices. In seeking a higher level of maturity, they should ensure a consistent approach, based on objectives for and measurements of the types of reward and recognition appropriate to the particular environment in which the Kumba Resources CICOP operates (in line with the corporate culture).

8.3.11 Storytelling model

The literature search identified a number of possible models for the use of stories and storytelling (see section 3.4.1 and Table 3.6). Without the use of a storytelling model an organisation runs the risk that the use of stories and storytelling to support knowledge sharing may be less effective, due to the failure to consider all of the aspects of the use of this potentially powerful management practice (such as an adequate focus on the effective development of the story itself, or the skills of the storyteller and of the story listeners).

It is recommended that, the Kumba Resources CICOP should ensure a consistent approach is implemented in terms of the use of the selected storytelling model, including the measurement of the effectiveness of the use of the model in the achievement of the knowledge sharing objectives.

8.3.12 Capture and reuse of stories

One of the elements of effective knowledge management that was identified in Chapter 2, was the ability of organisations to learn. The learning opportunity can extend to the ability to capture and re-use stories once they have been created as has been discussed in the literature (see Table 3.6).

It is therefore recommended that, the Kumba Resources CICOP, in seeking to improve their effectiveness in the use of stories and storytelling, should consider how they plan to capture and make available for reuse the stories which have been identified (and gathered) or created (perhaps based on anecdotes gathered from within the organisation), using whatever methods and technologies are appropriate to the specific situation (such as the use of audio and video recording techniques, or committing the story to some other form of permanent capture such as in writing). The Kumba Resources CICOP should identify appropriate ways to ensure effective reuse of the stories, hence leveraging their investments.

8.3.13 Catalogue of stories maintained

As an extension to the concept of capturing and re-using stories as highlighted in section 8.3.12, easy retrieval through the use of a catalogue of stories has been identified in the literature (see Table 3.6).

Therefore, it is recommended that the Kumba Resources CICOP should maintain a catalogue of stories, with a classification system that not only ensures speedy and flexible retrieval, but also will thus promote more active use of the stories. Such a system might well be supported by the Kumba Resources intranet.

8.3.14 Use of stories and storytelling internally and externally

It was identified in the literature (see Table 3.6) that the value of stories and storytelling is not limited to the use within a single community.

It is therefore recommended that, the Kumba Resources CICOP should evaluate the extent to which the storytelling practices used in the community may have applicability elsewhere, both in other communities inside Kumba Resources or outside the organisation, such as with customers or suppliers or business partners.

8.3.15 Role of technology in stories and storytelling

There has been extensive discussion in the literature about the use of technology to support a knowledge management strategy (see section 2.3.4 and Table 3.6).

Therefore, it is recommended that, the Kumba Resources CICOP should carefully evaluate what technology is appropriate to support the use of stories and storytelling. It is clear from the empirical research that there has to date been a marked preference for the use of paper-based storyboards, without a clear justification as to why this particular medium is used in preference to, or in combination with any other medium

in support of the oral storytelling method (such as audio and/or video recordings and later playback).

8.3.16 Understanding of where not to use stories and storytelling

A number of authors have highlighted the fact that it may not be appropriate to use stories and storytelling to share knowledge in every circumstance (see section 3.3.3 and Table 3.6).

It is therefore recommended that, the Kumba Resources CICOP investigate the conditions under which it would be inappropriate for the use of stories and storytelling in pursuit of the objectives of the organisation.

8.3.17 Stories and storytelling community of practice

The value of the community of practice has not only been identified in the literature (see section 2.3.7 and Table 3.6), but also is clearly already recognised within Kumba Resources, based on the numbers of communities of practice in existence during the research project.

However, it is recommended that the Kumba Resources CICOP evaluate the extent to which an additional community of practice should be formed within the broader organisation (Kumba Resources), with the specific objective of supporting the use of stories and storytelling.

8.3.18 Stories and storytelling value rating scale

Given the significant number of stories that are in active use across the business, it is recommended that the Kumba Resources CICOP evaluate the development of a value rating scale in two areas. Firstly, this should take the form of an evaluation of the relative value of the stories in use at the operational locations. Then, secondly, a value

rating in terms of the ways in which the stories are told (for example, comparing the use of oral storytelling methods, industrial theatre, through graphical support through the use of storyboards).

8.3.19 Summary of recommendations

If the Kumba Resources CICOP is serious about improving world-class performance and plan to continue to use stories and storytelling as knowledge sharing practices, then the implementation of the recommendations contained in sections 8.3.1 to 8.3.18 could have a significant impact on the achievement of improved performance.

8.4 Recommendations for further research

There were two main areas identified for further research during this research project: the world-class performance framework, and the expansion of the research base beyond the limits of the case study organisation. Both these issues will be explored in this section.

8.4.1 World-class performance framework

The world-class performance framework first presented in Chapter 4 of this research report, proved to be a useful tool in defining the performance of the various aspects of the case study organisation that were the focus of this research report. However, in the opinion of the researcher, there remains a significant opportunity to enhance the value of this framework through further development of each of the elements of the framework, as it applies in the field of knowledge management.

8.4.1.1 Best practices

Relatively little research has been conducted to date in South Africa in terms of the practices used in support of a knowledge management strategy. Further research could usefully be conducted to improve the understanding of the use of best practices, with particular regard to the South African situation. This research could be conducted with a number of focus areas:

- Size of organisation (large, medium and small enterprises)
- Type of organisation ownership (state-owned enterprises, non-governmental organisations, publicly-held companies, privately held companies etc)
- Industry grouping (for example, within financial services, manufacturing, retail etc)
- Knowledge management dimension (for example, processes, practices, tools, strategies, measures, etc).

The results of this research into best practice could then be used for comparison to the situation in those focus areas in other countries or regions of the globe.

8.4.1.2 Benchmarking

Due in part to the relative lack of maturity of the knowledge management community in South Africa, relatively little work has been done either by organisations or industry groupings to benchmark the effectiveness of the organisations' knowledge management strategies. Such benchmarking activities could include a focus on internal benchmarking (within organisations), external benchmarking (between organisations), or international benchmarking (between the situation in South Africa and other countries or parts of the world).

These benchmarking activities might usefully be supported not only by the organisations themselves but by independent bodies (which either already exist or are specifically set up for that purpose). Further academic research into the field of benchmarking for knowledge management would then be justified.

8.4.1.3 Standards

As was identified in Chapter 4 of this research report, little formal progress has so far been made in the development and implementation of national or global standards in the field of knowledge management. The opportunity exists for the knowledge management community within South Africa to more actively participate in the development of formally accepted standards (whether they originated within the country, or adopted or adapted from outside the country). Further academic research, perhaps even participating in the identification of the need for such standards, would seem justified.

8.4.1.4 Quality Management

Although the general field of quality management is relatively well established, as was discussed in Chapter 4, there is little research which has so far been conducted in South Africa, amongst those organisations with a knowledge management strategy, in terms of how they integrate that strategy with their quality management initiatives. This could provide a useful additional avenue for further academic research.

8.4.1.5 Capability Maturity Model

The concept of capability maturity formed a key part of the analytical model used in the conduct of this research. However, the extent to which those organisations who seek to leverage a knowledge management strategy in South Africa are aware of, or are actively using, such a model to assist them in improving their organisational performance, is not clear. It would be useful, therefore, to conduct additional research to understand the extent to which the use of this model could be applied, not only in the field of knowledge management but also in other aspects of the performance measurement and development of organisations.

As the concept of capability maturity has already been applied in a number of other fields (as discussed in Chapter 4), it may even be useful to investigate the possibility

of developing a broader model, particularly tailored for the local South African situation (but with the potential for global application) which examines the overall maturity, when knowledge management success is one of the contributory performance factors.

8.4.2 Expansion of the research base

This research project was focused on one aspect of the activities in one organisation over a relatively brief period of time. The implication of this is that the research base might usefully be expanded in a number of ways as discussed in this section.

8.4.2.1 Comparative study in Kumba Resources

The investigation into the case study organisation that was the focus of this research, in terms of the methodology described in Chapter 5, was a snapshot case study. The potential exists to conduct further research, over an extended period of time, within the case study organisation, in an effort to understand the long-term implications of the use of stories and storytelling as part of the knowledge management strategy.

8.4.2.2 Comparative study with other South African organisations

The research problem that was the focus of this case study research, was limited to improving the understanding of the use of stories and storytelling within a single organisation. The scope of the research might usefully in future be extended to include other organisations in the same industry or organisations in another industry to compare results of the use of stories and storytelling.

8.4.2.3 Multi-company study within South Africa

A further avenue of research might usefully be to conduct a multi-company study into the use of stories and storytelling, where the objectives of this future research would

be broader than the narrower comparative basis (between only two organisations) proposed in section 8.4.2.2.

8.4.2.4 Multi-company study across African countries

As identified in Chapter 4, the impact of globalisation is widely felt and, therefore, the benefits of further research might well be achieved through not limiting the scope of any further investigation to the borders of South Africa. In particular, given the growth of the regional groupings such as the Southern Africa Development Community (SADC) and African Union (AU), there may be good reason to support the objectives of the SADC and AU, through further research, perhaps with a focus on indigenous knowledge, with a view to identifying the specific African cultural context to knowledge management across the continent.

8.4.2.5 Global study

The impact of globalisation mentioned in section 8.4.5 naturally leads to the suggestion that further research might usefully be conducted on a global basis into the use of stories and storytelling in support of a knowledge management strategy. The results of the literature survey conducted, and then reported in Chapter 3, indicated a certain level of awareness in the management literature of the potential benefits of the use of stories and storytelling, but there was limited evidence of the extent to which organisations operating on a global basis are able to leverage the potential benefits of storytelling. This area then might also yield fruitful additional research.

8.5 Summary

This final chapter has reviewed the extent to which the original research problem was addressed, as well as discussing a number of recommendations for the improved use of stories and storytelling as part of a knowledge management strategy in the case study organisation. In addition, a number of areas for possible future research have

been identified and discussed, arising from this research project. This research report represents the culmination of a formal research project but at the same time presents an opportunity for those accessing the report to not only benefit from the results of this research but also to assist them in their own future research efforts.

9 Bibliography

- APQC (American Productivity and Quality Centre), 1997. *Benchmarking benchmarking*. [sic] [Online] Available: www.apqc.org [cited 23 September 2003]
- APQC (American Productivity and Quality Centre), 2000. *Successfully implementing knowledge management*. [Online] Available: www.apqc.org [cited 23 September 2003]
- Allee, V., 1997. Twelve principles of knowledge management. *Training and development*, 51(11):71-75
- Ansoff, H.I., 1984. *Implanting strategic management*. New Jersey: Prentice-Hall International
- Armstrong, D., 1992. *Managing by storying around*. New York: Doubleday
- Bell, D., 1973. *The coming of post-industrial society*. New York: Basic Books
- Best Practices LLC, 2003. *What is benchmarking?* [Online] Available: www.best-in-class.com/site_tools/faq.htm#best_practice [cited 2 September 2003]
- Better product design, [Undated] *Process maturity/capability maturity*. [Online] Available: www.betterproductdesign.net/maturity.htm [cited 20 May 2004]
- Binney, D., 2001. The knowledge management spectrum - understanding the KM landscape. *Journal of Knowledge Management*, 5(1):33-42
- Birkinshaw, J. and Sheehan, T., 2002. Managing the knowledge life cycle. *MIT Sloan Management Review*, 43(3):75-83

- Boje, D., 1991. The storytelling organisation: a study of story performance in an office-supply firm. *Administrative Science Quarterly*, 36(01):106-121
- Boje, D.M., Luhman, J.T. and Baack, D.E., 1999. Hegemonic stories and encounters between storytelling organisations. *Journal of Management Inquiry*, 8(4):340-360
- Bouthillier, F. and Shearer, K., 2002. Understanding knowledge management and information management: the need for an empirical perspective. *Information Research*, 8(1) [Online] Available: <http://InformationR.net/ir/8-1/paper141.html> [cited 28 September 2005]
- Boyce, M.E., 1995. Collective centring and collective sense-making in stories. *Organization Studies*, 16(1):107-137
- Boyce, M.E., 1996. Organizational story and storytelling: a critical review. *Journal of Organizational Change Management*, 9(5):5-26
- Brown, J.S. and Duguid, P., 1998. Organizing knowledge. *California Management Review*, 40(3):90-111
- Brown, J.S. and Duguid, P., 2000a. *The social life of information*. Boston: Harvard Business School Press
- Brown, J.S. and Duguid, P., 2000b. Balancing act: how to capture knowledge without killing it. *Harvard Business Review*, 78(3):73-80
- Brown, J.S., Denning, S., Groh, K. and Prusak, L., 2005. *Storytelling in organisations: why storytelling is transforming the 21st century organisations and management*. Oxford: Butterworth – Heinemann
- BSI (British Standards Institute), 2003a. *Managing culture and knowledge: guide to good practice*. London: British Standards Institute

BSI (British Standards Institute), 2003b. *Knowledge management – vocabulary*. London: British Standards Institute

Buckler, S.A. and Zien, K.A., 1996. The spirituality of innovation: learning from stories. *Journal of Product Innovation Management*, 13(5):391-405

Cavaye, A., 1996. Case study research: a multi-faceted approach for IS. *Information Systems Journal*, 6(4):227-242

CBI (Confederation of British Industry), [Undated]. *PROBE*. [Online] Available: www.cbi.org.uk/probe [cited 11 March 2003]

CEN (Comité Européen de Normalisation), 2004. *European guide to good practice in Knowledge Management – Part 5: KM Terminology*. [Online] Available: www.cenorm.be [cited 27 September 2005]

Chase, R., 1997. The knowledge-based organisation: an international survey. *Journal of Knowledge Management*, 1(1):20-35

Chase, R., 2003. *MAKE awards*. [Online] Available: www.knowledgebusiness.com [cited 2 September 2003]

Cohen, D., 1998. Toward a knowledge context. *California Management Review*, 40(3):22-39

Collins English dictionary, 2000. New York: HarperCollins Publishers

Collison, C., 2004. *KM self-assessment*. [Online]. Available: <http://www.chriscollison.com/12f/whatiskm.html#assessment> [cited 9 September 2005]

Collison, C. and Parcell, G., 2001. *Learning to fly*. London: Capstone

Communicating the change. 2004. *Transformation*, May:12-16.

Crosby, P.B., 1979. *Quality is free*. New York: McGraw-Hill

Cross, R. and Baird, L., 2000. Technology is not enough: improving performance by building organisational memory. *MIT Sloan Management Review*, 41(2):54-62

Cusick, K., 1998. *Measuring success: presentation at ProjectWorld 1998*. [Online]. Available: www.secat.com [cited 11 March 2003]

Darke, P., Shanks, G. and Broadbent, M., 1998. Successfully completing case study research: combining rigour, relevance and pragmatism. *Information Systems Journal* 8(4):273-289

Davel, R. and Snyman, M.M.M., 2005. Influence of corporate culture on the use of knowledge management techniques and technologies. *South African Journal of Information Management*, 7(2). [Online] Available: www.sajim.co.za [cited 30 August 2005]

Davenport, T.H., 1998. *Some principles of knowledge management*. [Online] Available: www.bus.utexas.edu/kman/kmprin.htm#TOC [cited 21 April 2003]

Davenport, T.H., De Long, D.W. and Beers, M.C., 1998. Successful knowledge management projects. *MIT Sloan Management Review*, 39(2):43-57

Davenport, T.H., Harris, J.G., De Long, D.W. and Jacobson, A.L., 2001. Data to knowledge to results: building an analytic capability. *California Management Review*, 43(2):117-138

Davenport, T.H., Jarvenpaa, S.L. and Beers, M.C., 1996. Improving knowledge work processes. *MIT Sloan Management Review*, 37(2):53-65

Davenport, T.H., Thomas, R.J. and Cantrell, S., 2002. The mysterious art and science of knowledge worker performance. *MIT Sloan Management Review*, 43(3):23-30

Davenport, T.H. and Glaser, J., 2002. Just-in-time delivery comes to knowledge management. *Harvard Business Review*, 80(1):5-15

Davenport, T.H. and Prusak, L., 1997. *Information ecology: mastering the information environment*. New York: Oxford University Press

Davenport, T.H. and Prusak, L., 1998. *Working knowledge: how organisations manage what they know*. Boston: Harvard Business School Press

Davenport, T.H. and Prusak, L., 1999. Working the watercooler. *Across the Board*, 36(3):12

David, F.R., 1997. *Concepts of strategic management*. 6th edition. New Jersey: Prentice-Hall International

Davis, S. and Botkin, J., 1994. The coming of the knowledge-based business. *Harvard Business Review*, 72(5):165-171

De Jager, M. 1999. The KMAT: benchmarking knowledge management. *Library Management*, 20(7):367-372

Demarest, M., 1997. Understanding knowledge management. *Long Range Planning*, 30(3):374-384

Denning, S., 2000. *The springboard: how storytelling ignites action in knowledge-era organizations*. Boston: Butterworth-Heinemann

Denning, S., 2001. Narrative understanding. *Reflections*, 3(2):46-55

Denning, S., 2002. The narrative lens: storytelling in 21st century organizations. *Knowledge Directions*, 3(2):92-101

Denning, S., 2004a. *The squirrel*. San Francisco: Jossey-Bass

- Denning, S., 2004b. Telling tales. *Harvard Business Review*, 82(5):122-129
- Denning, S., 2004c. *Knowledge sharing at the World Bank*. [Online] Available: www.iaea.org/km/cnkm/papers/denningusa.pdf [cited 27 September 2005]
- Despres, C. and Chauvel, D., 1999. Knowledge management(s). *Journal of Knowledge Management*, 3(2):110-120
- Dixon, N.M., 2000. *Common knowledge*. Boston: Harvard Business School Press
- Dorner, R., Grimm, P. and Abawi, D.F., 2002. Synergies between interactive training simulations and digital storytelling: a component-based framework. *Computers and Graphics*, 26:45-55
- Drucker, P.F., 1988. The coming of the new organisation. In: *Harvard Business Review on Knowledge Management*. 1998. Boston: Harvard Business School Press:1-19
- Drucker, P.F., 1993. *Post-capitalist society*. New York: Harper Business
- Drucker, P.F., 2000. Knowledge-worker productivity. *California Management Review*, 41(2):79-95
- Earl, L., 2002. *Are we managing our knowledge?* [Online] Available: www.statcan.ca/english/ips/data/88f0006xie2002006.htm [cited 28 September 2005]
- Earl, M.J., 2001. Knowledge management strategies: toward a taxonomy. *Journal of Management Information Systems*, 18(1):215-233
- Earl, M.J. and Scott, I.A., 1999. What is a Chief Knowledge Officer? *MIT Sloan Management Review*, 40(2):29-38

Easterby-Smith M., Thorpe R. and Lowe, A., 1991. *Management research: an introduction*. London: Sage Publications

Edmond, G. and Tilley, E., 2002. *Beyond role play: workplace theatre and employee relations*. [Online] Available: <http://www.bond.edu.au/hss/communication/ANZCA/papers/GEdmondETilleyPaper%20.pdf> [cited 29 September 2005]

Edwards, J.S. and Shaw, D., 2004. *Supporting knowledge management with IT: proceedings of the IFIP TC8/WG8.3 International conference, 2004*. [Online] Available: http://vishnu.sims.monash.edu.au:16080/dss2004/proceedings/pdf/23_Edwards_Shaw.pdf [cited 27 September 2005]

EFQM (European Foundation for Quality Management), 1999. *Web site home page* [Online] Available: www.efqm.org [cited 23 September 2003]

Ehms, K. and Langen, M., 2002. *Holistic development of KM with the KMMM*. Siemens AG unpublished paper.

Eisenhart, M., 2001. Washington's need to know. *Knowledge Management Magazine* [Online] Available: www.kmmag.com [cited 21 June 2003]

Elliott, S. and O'Dell, C., 1999. Sharing knowledge and best practices. *Health Forum Journal*, 42(3):34-38

European KM Forum, 2002. *KM framework*, 2nd release. [Online] Available: www.knowledgeboard.com [cited 23 September 2005]

Faul, M. and Camacho, K., 2004. *Knowledge sharing toolkit*. [Online] Available: www.bellanet.org [cited 27 September 2005]

Faulkner, M., 2000. Benchmarking is no stroll in the park. *Customer Management*, Nov/Dec:50-52

Fouche, B. and Botha, D., 2002. Auditing organisational knowledge management practices. *ICTSI Forum*. [Online] Available: www.ictsi.org/forum/40 [cited 10 July 2003]

Gallagher, S. and Hazlett, S., 1999. *Using the Knowledge Management Maturity Model (KM³) as an evaluation tool*. [Online] Available: www.bprc.warwick.ac.uk/km028.pdf [cited 11 March 2003]

Garcia, S., [Undated] *Evolving improvement paradigms: Capability Maturity Models and ISO/IEC 15504*. [Online] Available: www.sei.cmu.edu [cited 11 March 2003]

Gardner, D. and Winder, C., 1998. Using benchmarking to improve organisational communication. *Quality Assurance*, 6:201-211

Gerson, K. and Horwitz, R., 2002. Observation and interviewing, In: *Qualitative research in action*, edited by T. May. London: Sage:199-223

Gill, P., 2001. Once upon an enterprise. *Knowledge Management Magazine*. [Online] Available: www.kmmag.com [cited 8 July 2003]

Gillham, B., 2000. *Case study research methods*. London: Continuum

Gold, A.H., Malhotra, A. and Segars, A.H., 2001. Knowledge Management: an organisational capabilities perspective. *Journal of Management Information Systems*, 18(1):185-214

Grant, R.M., 1996. Toward a knowledge based theory of the firm. *Strategic Management Journal*, 17(4):109-122

Grover, V. and Davenport, T.H., 2001. General perspectives on knowledge management: fostering a research agenda. *Journal of Management Information Systems*, 18(1):5-21

Haggie, K. and Kingston, J., 2003. *Choosing your knowledge management strategy*. [Online] Available: www.inf.ed.ac.uk/publications/online/0258.pdf [cited 27 September 2005]

Hannabuss, S., 2000. Narrative knowledge. *ASLIB Proceedings*, 52(10):402-413

Hansen, C.D. and Kahnweiler, W.M., 1993. Storytelling: an instrument for understanding the dynamics of corporate relationships. *Human Relations*, 46(12):1391-1402

Hansen, M.T., Nohria, N. and Tierney, T., 1999. What's your strategy for managing knowledge? *Harvard Business Review*, 77(2):106-120

Hattersley, M., 1997. The managerial art of telling a story. *Harvard Management Update*, U9701D.

Hiebeler, R.J., 1996. Benchmarking: knowledge management. *Strategy and Leadership*, 24(2):22-29

Hofer-Alfeis, J. and van der Spek, R., 2002. The knowledge strategy process - an instrument for business owners. In: *Knowledge management case book*, edited by T.H. Davenport and G.J.B. Probst, 2nd edition. Berlin: Publicis Corporate Publishing: 24-41

Hussey, J. and Hussey, R., 1997. *Business research*. Basingstoke: Palgrave

Ibarra, H. and Lineback, K., 2005. What's your story? *Harvard Business Review*, 83(1):65-71

ICOBC, (International Council of Benchmarking Co-ordinators) [Undated] *Web site home page* [Online]. Available: www.icobc.com [cited 11 March 2003]

ISO (International Organization for Standardization), 2005. Overview of the ISO system [Online]. Available: www.iso.ch/iso/en/aboutiso/introduction/index.html#four [cited 27 September 2005]

James, C.H. and Minnis, W.C., 2004. Organizational storytelling: it makes sense. *Business Horizons*, 47(4):23-32

Jankowicz, A.D., 2000. *Business research projects*, 3rd edition. London: Business Press

Jensen, R., 1999. *The dream society*. New York: McGraw Hill

Jensen, J.L. and Rodgers, R., 2001. Cumulating the intellectual gold of case study research. *Public Administration Review*, 61(2):236-246

Johnson, C., 1997. Leveraging knowledge for operational excellence. *Journal of Knowledge Management*, 1(1):50-55

Kaye, B. and Jacobson, B., 1999. True tales and tall tales. *Training and Development*, 53(3):44-52

Kazimi, J., Dasgupta, R.R. and Natarajan, G., 2002. *The rise, fall and rise of knowledge management*. [Online] Available: www.zensar.com/pdfs/km2.pdf [cited 9 September 2005]

Klimko, G., 2000. *Knowledge management and maturity models: building common understanding*. [Online] Available: [http://informatika.bke.hu/bke_web_new/db/kutatas.nsf/0/b1b19999f83faf59c1256ced004fa899/\\$FILE/Knowledge%20Management%20and%20Maturity%20Models.doc](http://informatika.bke.hu/bke_web_new/db/kutatas.nsf/0/b1b19999f83faf59c1256ced004fa899/$FILE/Knowledge%20Management%20and%20Maturity%20Models.doc) [cited 7 October 2003]

KMCI (Knowledge Management Consortium International), [Undated]. *Position statement on issues in KM standards and certification*. [Online] Available: www.kmci.org/PressRelease/KmciPositionState.htm [cited 26 September 2003]

Koch, R., 1995. *Financial Times guide to strategy*. London: FT Pitman Publishing

Kochikar, V.P., 2000. *The knowledge management maturity model: a staged framework for leveraging knowledge*. [Online] Available: www.infosys.com/knowledge_capital [cited 26 September 2003]

Kouzman, A., Loffler, E., Klages, H. and Korac-Kakabadse, N., 1999. Benchmarking and performance measurement in public sectors: towards learning for agency effectiveness. *International Journal of Public Sector Management*, 12(2):121-129

Kruger, C.J. and Snyman, M.M.M., 2005. Formulation of a strategic knowledge management maturity model. *South African Journal of Information Management*, 7(2) [Online] Available: www.sajim.co.za [cited 30 August 2005]

Kumba Resources, 2002a. *Annual Report*. Pretoria: Kumba Resources

Kumba Resources, 2002b. *Breaking Ground*. Pretoria: Kumba Resources

Kumba Resources, 2003a. *Annual Report*. Pretoria: Kumba Resources

Kumba Resources, 2003b. *Breaking Ground*. Pretoria: Kumba Resources

Kumba Resources, 2004a. *Annual Report*. Pretoria: Kumba Resources

Kumba Resources, 2004b. *Breaking Ground*. Pretoria: Kumba Resources

Kumba Resources, 2004c. *SHEQ Vibes*. Pretoria: Kumba Resources

Kumba Resources, 2005a. *Knowledge Management team leaflet*. Pretoria: Kumba Resources

Kumba Resources, 2005b. *Breaking Ground*. Pretoria: Kumba Resources

Kumba Resources, [Undated] *Kumba Resources web site* [Online] Available: www.kumbarresources.com [cited 8 August 2005]

Kurtz, C.F. and Snowden, D.J., 2003. The new dynamics of strategy: sense-making in a complex and complicated world. *IBM Systems Journal*, 42(3):462-483

LaPorte, B., [Undated] *Knowledge is currency at the World Bank*. [Online]. Available: www.worldbank.org/ks/document/k_is_currency.pdf [cited 18 March 2003].

Leedy, P. and Ormrod, J.E., 2001. *Practical research: planning and design*, 7th edition. New Jersey: Prentice-Hall

Leonard, D., 1995. *Wellsprings of knowledge*. Boston: Harvard Business School Press

Liebowitz, J. and Chen, Y., 2004. Knowledge sharing proficiencies: the key to knowledge management. In: *Handbook on knowledge management*, edited by C. W. Holsapple. New York: Springer: 409-424

Loss of 400 jobs to help Kumba drive down costs. 2004. *Business Day*, 8 October

Malhotra, Y., 2002. *Knowledge roles: the CKO and beyond*. [Online] Available: www.yogeshmalhotra.com [cited 26 September 2003]

Manville, B. and Foote, N., 1996. Strategy as if knowledge mattered. *Fast Company*, (2):66-68

Martin, J., Feldman, S., Hatch, M.J. and Sitkin, S.B., 1983. The uniqueness paradox in organizational stories. *Administrative Science Quarterly*, 28(4):438-453

McAdam, R. and McCreedy, S., 1999. A critical review of knowledge management models. *The Learning Organisation*, 6(3):91-101

McKeen, J.D. and Staples, D.S., 2001. *Knowledge managers: who they are and what they do*. Kingston: Queen's University

McLellan, H., 2002. *Introduction to corporate storytelling*. [Online] Available: www.tech-head.com/cstory1.htm [cited 14 July 2003]

Merriam-Webster's collegiate dictionary. 2002. New York: Merriam-Webster

Miles, M.B. and Huberman, A.M., 1994. *Qualitative data analysis*, 2nd edition. London: Sage

Mitroff, I.I. and Kilman, R.H., 1975. Stories managers tell: a new tool for organizational problem solving. *Management Review*, 6:18-28

Mouton, J., 2001. *How to succeed in your master's and doctoral studies*. Pretoria: Van Schaik

Myers, M.D., 1997. *Qualitative research in information systems*, [Online] Available www.qual.auckland.ac.nz/ [cited 30 September 2003]

Ndlela, L.T. and du Toit, A.S.A, 2001. Establishing a knowledge management programme for competitive advantage in an enterprise. *International Journal of Information Management*, 21(2):151-165

Niessink, F., Clerc, V. and van Vliet, H., 2002. *The IT service capability maturity model*. [Online] Available: www.itservicecmm.org [cited 25 March 2003]

Nonaka, I., 1991. The knowledge-creating company. *Harvard Business Review*, 69(6):96-105

Nonaka, I., 1994. A dynamic theory of organisational knowledge creation. *Organization Science*, 5(1):14-37

- Nonaka, I. and Konno, N., 1998. The concept of “Ba”: building a foundation for knowledge creation. *California Management Review*, 40(3):40-54
- Nonaka, I. and Takeuchi, H., 1995. *The knowledge creating company: how Japanese companies create the dynamics of innovation*. New York: Oxford University Press
- O’Dell, C., 2002. *Knowledge Management: what’s now and what’s next*. [Online] Available www.chips.navy.mil/archives/02_winter/index2_files/knowledge_management.htm [cited 30 September 2003]
- O’Dell, C. and Grayson, C.J., 1998. If only we knew what we know. *California Management Review*, 40(3):154-174
- O’Dell, C. and Grayson, C.J., 1999. Knowledge transfer: discover your value proposition. *Strategy and Leadership*, 27(2):10-15
- O’Dell, C. and Grayson, C.J., 2004. Identifying and transferring internal best practices. In: *Handbook on knowledge management*, edited by C.W. Holsapple. New York: Springer:601-622
- O’Dell, C., Wiig, K. and Odem, P., 1999. Benchmarking unveils emerging knowledge management strategies. *Benchmarking*, 6(3):202-212
- Page, C. and Meyer, D., 2000. *Applied research design for business and management*. Roseville: McGraw-Hill
- Parkin, M., 2004. *Using storytelling to develop people and organisations*. London: Kogan Page
- Patton, M.Q., 2002. *Qualitative research and evaluation methods*, 3rd edition. London: Sage Publications

Paulzen, O. and Perc, P., 2002. *A maturity model for quality improvement in knowledge management: proceedings of the 13th Australasian Conference on Information Systems*. Melbourne: Australasian Conference on Information Systems: 243-253

Perry, C., 2001. Case research in marketing. *The Marketing Review 2001*. [Online] Available www.themarketingreview.com [cited 30 September 2003]

Pommier, M.J.L., [Undated] *The eight pillars of knowledge sharing: how the World Bank launched a knowledge management program*. [Online] Available: www.knowledgepoint.com.au/knowledge_management/Articles/KM_MP001a.htm [cited 28 September 2005]

Porter, M.E., 1980. *Competitive strategy*. New York: The Free Press

Powell, R.R., 1997. *Basic research methods for librarians, 3rd edition*. London: JAI Press

Prusak, L., 2001. Where did knowledge management come from? *IBM Systems Journal*, 40(4):1002-1007

Quinn, J.B., 1992. *Intelligent enterprise: a knowledge and service based paradigm for industry*. New York: The Free Press

Ready, D.A., 2002. How storytelling builds next-generation leaders. *MIT Sloan Management Review*, 43(4):63-70

Reamy, T., 2002. Imparting knowledge through storytelling. *KM World*, 11(7). [Online] Available: www.kmworld.com [cited 14 July 2003]

Roth, G. and Kleiner, A., 1997. How to make experience your company's best teacher. *Harvard Business Review*, 75(5):172-178

- Ruggles, R., 1998. The state of the notion: knowledge management in practice. *California Management Review*, 40(3):80-89
- Rumizen, M.C., 2002. *The complete idiot's guide to knowledge management*. Madison: CWL Publishing Enterprises
- SAEF (South African Excellence Foundation), [Undated] *Web site home page* [Online] Available: www.saef.co.za/asp/home/default.asp [cited 6 October 2003]
- SAI (Standards Australia International), 2001. *Knowledge management: a framework for succeeding in the knowledge era*. Sydney: Standards Australia International
- SAI (Standards Australia International), 2003. *Interim Australian standard: knowledge management*. Sydney: Standards Australia International
- Sandrock, J., 2004. *Creating a competent community*. [Online] Available: www.ikmagazine.com [cited 20 May 2005]
- Saunders, M., Lewis, P. and Thornhill, A., 2000. *Research methods for business students*. Cape Town: Pearson Education
- Scholtz, H., 2003. Why business needs a story. *People Dynamics*, June: 8-11
- SECAT (Systems Engineering Capability Assessment and Training LLC), 1998. *Why would you want to use a capability maturity model?* [Online] Available: www.secat.com [cited 11 March 2003]
- SEI (Software Engineering Institute), 2002. *CMM-I frequently asked questions*. [Online] Available www.sei.cmu.edu [cited 16 October 2003]
- Senge, P., 1990. *The fifth discipline: the art and practice of the learning organization*. New York: Doubleday
- Senge, P., 1998. The knowledge era. *Executive Excellence*, 15(1):15-16

- Senge, P., 1999. Sharing knowledge. *Executive Excellence*, 16(9):6-7
- Shah, S. and Patrick, K., 2002. Have you heard the one about. *Update*, 1(7):41-41
- Shaw G., Brown R. and Bromiley P., 1998. Strategic stories: how 3M is rewriting business planning. *Harvard Business Review*, 76(1):41-50
- Six Sigma, [Undated] *Six Sigma questions and answers*. [Online] Available <http://www.isixsigma.com> [cited 6 October 2003]
- Skyrme, D., [Undated] *KM standards, do we need them?* [Online] Available www.skyrme.com/updates/u65_f1.htm: [cited 26 September 2003]
- Skyrme, D., 1998. *Developing a knowledge strategy*. [Online] Available: www.skyrme.com/pubs/knwstrat.htm [cited 28 September 2005]
- Skyrme, D., 2000. *Knowledge management assessment tool*. [Online] Available: www.skyrme.com [cited 21 April 2003]
- Skyrme, D. and Amidon, D., 1998. The measures of success. *Journal of Business Strategy*, 17(1):20-24
- Smart, G., 1999. Storytelling in a central bank: the role of narrative in the creation and use of specialized economic knowledge. *Journal of Business and Technical Communication*, 13(3):249-273
- Smith, H.A. and McKeen, J.D., 2003. *Developing and aligning a KM strategy*. [Online] Available: www.busdiness.queensu.ca/kbe [cited 27 September 2005]
- Snowden, D.J., 1999a. The paradox of story: simplicity and complexity in strategy. *Journal of Strategy and Scenario Planning*, 1(5):24-32

- Snowden, D.J., 1999b. A framework for creating a sustainable programme. In: *Knowledge management: a real business guide*. London: Caspian Publishing:7-17
- Snowden, D.J., 2000a. New wine in old wineskins: from organic to complex knowledge management through the use of story. *Emergence*, 2(4):50-64
- Snowden, D.J., 2000b. *Storytelling and other organic tools for Chief Knowledge and Learning Officers*. [Online] Available: <http://www.traininguniversity.com/magazine/articles/snowden.asp> [cited 14 July 2003]
- Snowden, D.J., 2000c. The art and science of story or are you sitting comfortably? *Business Information Review*, 17(4):215-226
- Snowden, D., 2002. Complex acts of knowing: paradox and descriptive self-awareness, *Journal of Knowledge Management*, 6(2):1-13
- Snyman, M.M.M. and Kruger, C.J., 2004. The interdependency between strategic management and strategic knowledge management. *Journal of Knowledge Management*, 8(1):5-19
- Sole, D., 2002. Sharing knowledge through storytelling. *Harvard Graduate School of Education* [Online] Available: <http://lila.pz.harvard.edu> [cited 14 July 2003]
- Sole, D. and Wilson, D., 2002. *Storytelling in organisations*. [Online] Available: <http://lila.pz.harvard.edu> [cited 14 July 2003]
- Stake, R.E., 1995. *The art of case study research*. London: Sage Publications
- Stewart T.A., 1997. *Intellectual capital: the new wealth of organisations*. New York: Doubleday
- Stewart, T.A., 1998. The cunning plots of leadership. *Fortune*, 138(5):165-166

Stewart, T.A., 2002. The case against knowledge management. *Business 2.0*, 3(2):80-84

Struwig, S.W. and Stead, G. B., 2001. *Planning, designing and reporting research*. Cape Town: Pearson Education

Sveiby, K-E., 1997. *The new organisational wealth: managing and measuring intangible assets*. San Francisco: Berrett Koehler

Sveiby, K-E., 2001. A knowledge-based theory of the firm to guide strategy formulation. *Journal of Intellectual Capital*, 2(4):344-358

Swap, W., Leonard, D., Shield, M. and Abrams, L., 2001. Using mentoring and storytelling to transfer knowledge in the workplace. *Journal of Management Information Systems*, 18(1):95-114

Szulanski, G., 1996. Exploring internal stickiness: impediments to the transfer of best practice within the firm. *Strategic Management Journal*, 17(4):27-43

Szulanski, G. and Winter, S., 2002. Getting it right the second time. *Harvard Business Review*, 80(1):62-69

Teece, D., 1998. Capturing value from knowledge assets: the new economy, markets for know-how and intangible assets. *California Management Review*, 40(3):55-79

Tellis, W., 1997. Introduction to case study. *The Qualitative Report*, 3(2). [Online] Available: www.nova.edu/ssss/QR/QR3-2/tellis1.html [cited 30 September 2003]

TFPL., 1999. *Skills for knowledge management*. London: TFPL

TFPL., 2003. *Knowledge and information management: specific skills framework*. [Online] Available: http://www.tfpl.com/skills_development/kim_competency_dictionary.cfm [cited 8 August 2005]

Tiwana, A., 2000. *The knowledge management toolkit: practical techniques for building a knowledge management system*. Upper Saddle River: Prentice Hall

Toffler, A., 1990. *Powershift: knowledge, wealth and violence at the edge of 21st century*. New York: Bantam Books

TotalKm.com, [Undated]. *Knowledge management tools and techniques of a corporate environment*. [Online] Available: www.totalkm.com/corptools.shtml [cited 28 September 2005]

Van den Berg, H. and Snyman, M.M.M., 2003. Managing tacit knowledge in the corporate environment: communities of practice. *South African Journal of Information Management*, 5(4). [Online] Available: www.sajim.co.za [cited 3 May 2004]

Von Krogh, G., Ichijo, K. and Nonaka, I., 2000. *Enabling knowledge creation*. Oxford: Oxford University Press

Von Krogh, G., Nonaka, I. and Aben, M., 2001. Making the most of your company's knowledge: a strategic framework. *Long Range Planning*, 34(4):421-439

Voss, C., Blackmon, K., Chase, R., Rose, B. and Roth, A., 1997. *Achieving world-class service*. London: Severn Trent

Waldron, D.G. 1999. *Manufacturing strategy: what does it take to be world-class?* [Online] Available: www.sba.muohio.edu/abas/1999/waldroda.pdf [cited 23 September 2003]

Weil, E., 1998. *Every leader tells a story*. [Online] Available: www.fastcompany.com/online/15/rftf.html [cited 31 March 2003]

Welles, E.O., 1996. *Why every company needs a story*. [Online] Available: www.inc.com/articles/finance/capital/vent_capital/1658.html [cited 19 March 2003]

- Welman, C. and Kruger, F., 1999. *Research methodology for the business and administrative sciences*. Cape Town: Oxford University Press
- Wenger, E., 2000. Communities of Practice: the structure of knowledge stewarding. In: *Knowledge horizons: the present and the promise of knowledge management* edited by C. Despres and D. Chauvel. Boston: Butterworth Heinemann:205-224
- Wensley, A. and Verwijk-O'Sullivan, A., 2000. Tools for knowledge management. In: *Knowledge horizons: the present and the promise of knowledge management*, edited by C. Despres and D. Chauvel. Boston: Butterworth Heinemann:113-129
- Wilkins, A.L., 1984. The creation of company cultures: the role of stories and human resource systems. *Human Resource Management*, 23(1):41-60
- Yin, R.K., 1994. *Case study research: design and methods*, 2nd edition. Thousand Oaks: Sage
- Zack, M.H., 1999a. Developing a knowledge strategy. *California Management Review*, 41(3):125-145
- Zack, M.H., 1999b. Managing codified knowledge. *MIT Sloan Management Review*, 40(3):45-58
- Zack, M.H., 2002. *Developing a knowledge strategy: epilogue*. [Online] Available: <http://web.cba.neu.edu/~mzack/articles/kstrat2.htm> [cited 21 April 2003]

10 Appendix

Appendix 1: Research template

Presented here is a sample of the structured interview template used for maturity assessment of knowledge sharing and the use of stories and storytelling.

Template for interviews in order to assess knowledge sharing and storytelling maturity at Kumba Resources Continuous Improvement Community of Practice (CICOP).

Before the interview, the following will be provided to each interviewee:

- An introduction to the research project.
- Explanation of the purpose of the interview. The anonymity of the interviewee's responses will be confirmed.
- Explanation of how the results of the interview will be used.
- Indication of the planned follow-up steps.

Part One: Interviewee demographics

Name (first name, surname)	
Phone (office and mobile)	
Email address	
Job title and brief description of job role (including service length in Kumba Resources, how long current position held, primary responsibilities, reporting lines)	
Brief description of CICOP role	

Part Two: Maturity assessment on status of Knowledge Sharing (KS) in the Kumba Resources CICOP

The maturity assessment will be based on a joint assessment between the interviewer and interviewee and based on the criteria used in the table below. If doubt exists as to whether a capability level has been achieved, the next lower level will be selected.

<i>Item number</i>	<i>Questions</i>	<i>Comments</i>	<i>Capability maturity (see level descriptions in table attached)</i>
KS01	How would you assess the maturity of ownership of KS (e.g. person responsible)?		
KS02	How would you assess the maturity of objectives for KS (e.g. what and why to share)?		
KS03	How would you assess the maturity of tools & practices for KS (e.g. mentoring, stories, simulation)?		
KS04	How would you assess the maturity of training & education for KS?		
KS05	How would you assess the maturity of measures of KS (e.g. frequency, formal versus informal)?		
KS06	How would you assess the maturity of success stories of KS (e.g. benefits achieved)?		
KS07	How would you assess the maturity of benchmarking internally or externally?		
KS08	How would you assess the maturity of reward and recognition for KS?		
KS09	How would you assess the maturity of the role of KS and its importance as part of the CICOP KM strategy?		
KS10	Other (at suggestion of the interviewee)		

Part Three: Maturity assessment on the status of the use of storytelling (ST) for knowledge sharing in the Kumba Resources CICOP

The maturity assessment will be based on a joint assessment between the interviewer and interviewee and based on the criteria used in the table below. If doubt exists as to whether a capability level has been achieved, the next lower level will be selected.

<i>Item number</i>	<i>Questions</i>	<i>Comments</i>	<i>Capability maturity (see level descriptions in table attached)</i>
ST01	How would you assess the maturity of the ownership of storytelling (ST) (e.g. person responsible)?		
ST02	How would you assess the maturity of the executive sponsorship for the use of ST?		
ST03	How would you assess the maturity of the objectives for ST (e.g. when and why to use ST)?		
ST04	How would you assess the maturity of the funding agreed upon to create and maintain the use of stories?		
ST05	How would you assess the maturity of the tools & practices for ST?		
ST06	How would you assess the maturity of the training & education for ST (e.g. how to construct and tell stories)?		
ST07	How would you assess the maturity of the measures of ST (e.g. frequency, impact of ST)?		
ST08	How would you assess the maturity of the success stories of ST (e.g. benefits achieved)?		
ST09	How would you assess the maturity of the benchmarking internally or externally (e.g. specific example)		
ST10	How would you assess the maturity of the reward and recognition for use of ST (e.g. specific reward for ST)?		
ST11	How would you assess the		

	maturity of the use of a storytelling model (e.g. storyteller, story, listener)?		
ST12	How would you assess the maturity of the capture and reuse of stories?		
ST13	How would you assess the maturity of the catalogue of stories maintained?		
ST14	How would you assess the maturity of the extent to which stories are used internally and externally for KS?		
ST15	How would you assess the maturity of the role of technology in ST?		
ST16	How would you assess the maturity of the understanding of where not to use stories?		
ST17	How would you assess the maturity of the Storytelling Community of Practice?		
ST18	How would you assess the maturity of the story value rating scale?		
ST19	Other (at suggestion of the interviewee)		

Part Four: Capability Maturity Descriptions

The descriptions in this table will be used to assist in the assignment of maturity levels in the Knowledge Sharing and Storytelling assessment tables above.

Capability level	Title	Description	Required to move to the next level
Zero (0)	NOT PERFORMED	Process area not being done Organisational starting point	Process area must be performed
One (1)	INITIAL - Performed informally	Individual heroics Essential elements performed Process area performed inconsistently across the organisation Some evidence of activity and results	Repeatable practices must be developed and used
Two (2)	REPEATABLE - Planned and tracked	Activity is planned and managed Projects used a defined process Local chaos is controlled but capability remains at unit level	Organisational standard processes must be developed and introduced
Three (3)	DEFINED – Well defined	Development of org. standard process Projects use org. standard process Sharing organisational learning	Quantitative goals must be developed and introduced
Four (4)	MANAGED - Quantitatively controlled	Definition of quantitative goals Process metrics captured Managing process by data	Continuously improving practices must be developed and introduced
Five (5)	OPTIMISING - Continuously improving	Quantitative strategic goals Processes improved Improvement based on data	

Appendix 2: Continuous Improvement maturity model

This is an example of the Kumba Resources CICOP maturity model, also known internally as the 'performance staircase'.

CONTINUOUS IMPROVEMENT – CAPABILITY ASSESSMENT CODE BOOK

Summary of Behaviour description per maturity level

BEHAVIOUR	Level 1 Natural/background -CI	Level 2 Structured CI	Level 3 Goal oriented CI	Level 4 Pro-active CI	Level 5 Full CI Capability
1 Understanding CI	People not involved in CI, nor being motivated to get involved by leadership. Problems solved ad-hoc. Strong blame culture.	Significant numbers of people involved. Strong support from top management. Middle management and lower primarily just going along. Blame culture declining.	Majority of people involved. Strong support throughout organisation. Blame culture isolated.	People involved without consciously thinking about it. CI has become a way of life.	Experimentation is encouraged. Mistakes are learning experiences.
2 Strategy deployment	People throughout organisation deal with own, short term targets. Targets not linked to Coy or other section/dept targets. No CI related measurement.	Local targets sometimes used to generate improvement ideas. CI activity measured, usually by central function, but not impact.	Local targets, of which the link to company targets is clear to all, always used to focus improvement activity. CI activity and impact monitored. VPM widely used. Everyone knows where they fit in.	Operational and improvement targets integrated, well known and monitored by people involved. Impact on company performance, as well as other sections/ departments understood by all. Extensive use of VPM.	Company strategy and targets are general knowledge to all, with all playing some part in formulation. Impact on upstream/ downstream parties inside or outside the company also taken into account. Monitoring of performance across department/ company borders.
3 Leading CI	Supervisors concentrate only on day-to-day activities. They do not spend time on pro-active improvement or encourage or support sub-ordinates to do so.	Some supervisors allocate time to CI activities when initiated and arranged by CI function. Some encourage and recognise involvement by sub-ordinates.	In general supervisors visibly support, initiate and are involved in CI activities. They encourage participation, expect results and always recognise contributions.	Supervisors/managers are viewed as champions for CI. They spend significant amounts of time/resources on CI and expect involvement from sub-ordinates.	Supervisors/ managers at all levels are driving the improvement process. They continuously energise subordinates. CI is no longer a staff function.
4 Deployment and use	Problem solving ad hoc. Very limited use of tools. No structured mechanisms available to channel ideas.	Full problem solving cycle seldom used. Basic tools generally in use. One mechanism predominantly used to initiate and channel ideas.	Structured problem solving almost standard approach. Multiple tools and mechanisms in use to generate and channel improvement.	Structured process applied almost automatically without facilitation. High level of training in multiple tools. Eagerness to try new tools.	High training and skills levels and application of multiple techniques. New techniques regularly introduced and developed.

2004-07-21

2

CI_Lower_Code_book_version_2_rev_2.doc

CONTINUOUS IMPROVEMENT – CAPABILITY ASSESSMENT CODE BOOK

BEHAVIOUR	Level 1 Natural/background -CI	Level 2 Structured CI	Level 3 Goal oriented CI	Level 4 Pro-active CI	Level 5 Full CI Capability
5 Consistency in CI	No formal improvement process/ system. Ad hoc improvement efforts hampered by system/process constraints.	Improvement process separate from operational. Special arrangements required for involvement.	Improvement activities fit in with operational. Major changes in CI processes/systems.	Improvement processes and activities are fully integrated with normal company processes and operations. Misalignment addressed continuously.	Improvement processes drive organisational changes. Processes develop and grow together.
6 Cross boundary CI	Everyone internally focussed. Own results only concern. No cross boundary CI. Unhealthy competition.	Primary focus on own results. Unhealthy competition still present. External assistance available on request. Knowledge limited to bordering functions.	Regular cross boundary improvement efforts. Good knowledge of company and other section/dept targets, as well as cross boundary impacts.	Holistic view of company performance drives CI. Cross boundary cooperation natural. Horizontal and vertical representation on team's way of life.	Holistic view of company in external environment drives CI. Customers and suppliers are partners in CI activities, which also target their internal performance.
7 Sharing and capturing learning	Task/ project reviews generally not done. Problem/ solution discussions informal and limited to direct work group. Training limited to minimum required for job	Task/ project reviews done formally, but no formal capturing of learning. Problem/ solution discussions at formal meetings. Some training in addition to minimum required.	Formal task /project reviews mostly done, leading to actions plans ensuring learning captured. Solution implementations formally discussed, learning's documented.	Experience learning formal and recognised process. Capturing of learning systematic, standard process. People encouraged and supported to further training.	Learning from experience, capturing and sharing of learning part of company culture. Advanced job related and personal development training encouraged, supported as high priority.
8 CI on CI	No designated responsibility for CI. CI activity not monitored. No/ very little resources allocated to encourage improvement.	Improvement activity monitored, but results/ impact monitoring not comprehensive. Process implementation success monitored and amended where necessary. Resources available not sufficient to establish and support improvement processes in all areas.	Improvement activity and impact monitored, utilising synchronised, linked systems. Process functioning and impact monitored at high level and amended where necessary. Resources available sufficient to establish and support improvement processes in all areas, but not to significantly enrich established processes.	Improvement activity and impact monitored by teams themselves, utilising integrated system. Process functioning and impact monitored at all levels and amended where necessary. Resources available are sufficient to maintain and enrich improvement processes.	Improvement activity and impact monitored by teams themselves, utilising integrated system. Process functioning and impact monitored by teams at all levels and amended where necessary. Resources available are sufficient to maintain and enrich improvement processes.

Appendix 3: Storyboard profiles

These tables contain the profiles of the storyboards presented in Chapter 6.

Reference to figure in Chapter 6	Figure 6.3
Name of storyboard	Kumba Way storyboards
Title	Various
Dimensions	Height 60 cm Width 40cm
Slogan	Varies by poster: Accountability; Motivational values; Foundational values; We do it better every time
Background design	The setting is a representation of an outdoor scene with an ant or ants in action living out the values
Removable sections	No
Overall theme	Supports Kumba Way themes
Character design	Ant characters
Local character integrated	No
Integration of Kumba Way ants	Yes, these are the ants posters
Kumba corporate logo	Yes
Multiple language slogans	Yes, with separate posters only
Integration of Kumba corporate theme or values	Yes, using Kumba Way terminology
Specific objectives mentioned	No

Reference to figure in Chapter 6	Figure 6.5
Name of storyboard	Sishen mine storyboard, 2004
Title	None
Dimensions	Height 36 cm Width 95 cm
Slogan	Together we add value
Background design	The setting is a representation of the surface area surrounding the mine the vegetation and equipment is similar to that which can be found at the mine
Removable sections	Yes, 12 sections
Overall theme	A journey from the current reality into the future, addressing business goals, inviting feedback, in the context of the local vision and mission
Character design	Human-like characters of neutral colour including both genders
Local character integrated	No
Integration of Kumba Way ants	No
Kumba corporate logo	No
Multiple language slogans	No
Integration of Kumba corporate theme	Yes, mentions specific Kumba Way values

or values	
Specific objectives mentioned	Growth volume cost efficient culture and leadership safety and health, environment and quality corporate citizenship

Reference to figure in Chapter 6	Figure 6.6
Name of storyboard	Thabazimbi mine storyboard, 2003
Title	None
Dimensions	Height 33 cm Width 90 cm
Slogan	Thabazimbi – Together We Move Mountains
Background design	The setting is a representation of the surface area surrounding the mine the vegetation and equipment is similar to that which can be found at the mine
Removable sections	Yes, 15 sections
Overall theme	Current successes then a SWOT analysis (strengths; weaknesses; opportunities; threats); then sections on Vision; Mission; Values; Strategic business goals are defined (process integration; macro trance formation; sustainable business development; safety health and environment; leadership and high-performance culture)
Character design	Non-human characters (of neutral colour, neutral gender)
Local character integrated	No
Integration of Kumba Way ants	No
Kumba corporate logo	No
Multiple language slogans	No
Integration of Kumba corporate theme or values	Yes, using Kumba Way terminology
Specific objectives mentioned	No, only in general terms under the strategic business goals using graphics

Reference to figure in Chapter 6	Figure 6.7
Name of storyboard	Grootegeluk mine storyboard, 2002
Title	None
Dimensions	Height 28 cm Width 87 cm
Slogan	Grootegeluk is excellent
Background design	The setting is a representation of the surface area surrounding the mine the vegetation and equipment is similar to that which can be found at the mine
Removable sections	Yes, 10 sections
Overall theme	SWOT analysis (strengths; weaknesses; opportunities; threats); values; achievement
Character design	Non-human characters (of neutral colour, neutral gender)
Local character integrated	Yes
Integration of Kumba Way ants	No
Kumba corporate logo	No
Multiple language slogans	No
Integration of Kumba corporate theme or values	Yes, but not using Kumba Way terminology
Specific objectives mentioned	Costs Volume output People performance Safety and health, environment and quality

Reference to figure in Chapter 6	Figure 6.8
Name of storyboard	Grootegeluk mine storyboard, 2003
Title	None
Dimensions	Height 40 cm Width 90 cm
Slogan	Grootegeluk –Great our name – Excellence our aim is excellent
Background design	The setting is a representation of the surface area surrounding the mine the vegetation and equipment is similar to that which can be found at the mine
Removable sections	Yes, 11 sections
Overall theme	Achievement of five trusts (SHEQ; high-performance culture; client relationship management KEVA; corporate citizenship). This is contextualised to the current situation through vision and values
Character design	Non-human characters (of neutral colour, neutral gender)
Local character integrated	Yes
Integration of Kumba Way ants	Yes
Kumba corporate logo	No
Multiple language slogans	No

Integration of Kumba corporate theme or values	Yes, using Kumba Way terminology
Specific objectives mentioned	Volume output Safety and health, environment and quality

Reference to figure in Chapter 6	Figure 6.10
Name of storyboard	Grootegeeluk marula tree storyboard, 2003
Title	Twelve posters each with own title
Dimensions	Height 80 cm Width 60cm
Slogan	Varies by poster: the story traces the progress of the life of the business built on the marula tree and relates to the mine's business
Background design	Varies according to the scene on the poster
Removable sections	Yes, story is built with twelve individual sections (posters)
Overall theme	Explains six business fundamentals: vision; mission; strategic goals; profit; stakeholders; client relations. Then relates these to the mine's business
Character design	Human-like characters
Local character integrated	No
Integration of Kumba Way ants	No
Kumba corporate logo	No
Multiple language slogans	No
Integration of Kumba corporate theme or values	No
Specific objectives mentioned	Yes, within the context of the story. First part of the story talks about the concepts through the tree; second part of the story relates the concepts to the mine's business

Reference to figure in Chapter 6	Figure 6.11
Name of storyboard	Zimisele project storyboard, 2003
Title	Zincor Business Improvement Project
Dimensions	Height 45 cm Width 60 cm
Slogan	Commit yourself
Background design	Four different colour-coded sections have been arranged in a circular layout
Removable sections	No
Overall theme	A journey in seven phases: current situation; the challenge; discussions to resolve; collect info and ideas; implementation planning; reality; future intent
Character design	Non-human characters (of neutral colour, neutral gender)

Local character integrated	No
Integration of Kumba Way ants	No
Kumba corporate logo	No
Multiple language slogans	No
Integration of Kumba corporate theme or values	No
Specific objectives mentioned	Cost reduction Timescales Increasing income Safety and health, environment and quality

Reference to figure in Chapter 6	Figure 6.12
Name of storyboard	Zincor corporate storyboard, 2004
Title	None
Dimensions	Height 41 cm Width 92 cm
Slogan	Zincor – Together we can!
Background design	The setting is a representation of an outdoor scene at the plant with the plant buildings in the background
Removable sections	Yes, 10 sections
Overall theme	Kumba and Zincor visions; move to current reality; strategy; 5 specific thrusts (internal quality; satisfied employees; operational excellence; external value; satisfied and loyal customers); foundational and motivational values; future intent
Character design	Non-human characters (of neutral colour, neutral gender) combined with human characters of both genders and multiple racial groups represented
Local character integrated	No
Integration of Kumba Way ants	Yes
Kumba corporate logo	Yes
Multiple language slogans	Yes
Integration of Kumba corporate theme or values	Yes, using Kumba Way terminology
Specific objectives mentioned	Yes, for strategic business goals under future intent