

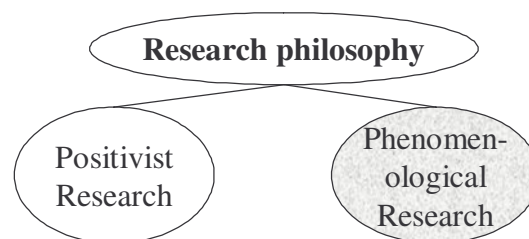
## 5 Research methodology

### 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:

	<b>Positivist paradigm</b>	<b>Phenomenological paradigm</b>
<b>Basic beliefs</b>	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
<b>Researcher should</b>	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
<b>Preferred methods include</b>	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).

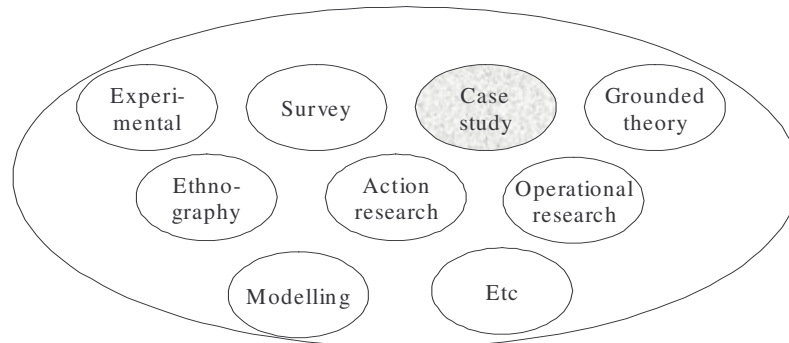
Easterby-Smith *et al.* (1991:33) discussed the “traditional assumption that in science the researcher must maintain complete independence if there is to be any validity in the results produced.” As outlined in Table 5.1, the phenomenological research paradigm is, by its very nature, subjective. The 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.

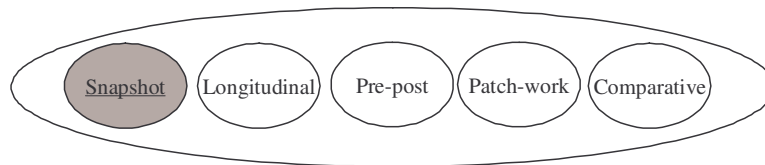
- Data collection stage: this stage included the gathering of both qualitative and quantitative data through a series of interviews (using structured, semi-structured and unstructured techniques) as well as the gathering of a number of artefacts (documents and so on) to assist in adding depth to the 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 2005<sup>1</sup>. 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).

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<sup>1</sup> 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)<sup>2</sup>, 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.

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<sup>2</sup> 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.