CHAPTER 1:   BACKGROUND TO AND FORMULATION OF THE RESEARCH PROBLEM

1.1   INTRODUCTION

This chapter discusses the background to and motivation for the research. The research problem, the research questions posed around the problem and the aims of the research are formulated. In order to properly position the research and define its limited scope, the meta-context of the research is outlined. This is followed by a description of the research design and method.

1.2   BACKGROUND TO AND MOTIVATION FOR THE RESEARCH

The literature seems to provide sufficient evidence of the assumption that organisational culture is a critical concept in businesses (Denison, 1984,1990,1996; Fisher & Denison, 2000; Roethlisberger & Dickson, 1975; Peters & Waterman, 1982; Deal & Kennedy, 1982). The rationale for this statement is emphasised in particular in the research of Daniel Denison since the 1980s. Denison has been working not only on the problem of measuring culture, but also linking it to specific business performance indicators (Denison, 1996). Building on Denison's work, Fisher (1997) draws on the connection between culture and business performance, to help leaders develop strategies to support their performance goals. Research conducted by Denison (1984, 1990, 1996) and Fisher (1997) clearly shows that, regardless of the size, sector, industry or age of a business, culture affects performance.

From this it follows that organisational culture needs to be managed or changed in order to manage organisational performance. Academic disagreement and debates and the failure to deliver any tangible results have fuelled fundamental confusion about culture and its impact on business performance. The business community is understandably confused and cynical about the whole topic of organisational culture. Fisher and Denison (2000) remark that many leaders struggle to understand what culture really is and whether it can be changed in order to improve performance. The discussion about organisational culture in the past 10 to 20 years has sent out the message that culture is a mysterious thing that is hard to understand and impossible

to change as is evident from Fisher and Denison's (2000) opinion that culture has been defined in so many abstract ways – people have referred to it as everything from sets of symbols, ceremonies, and myths to shared values and the glue that supports the workplace structure. There was no agreement about how it could be measured or how it actually links to business results.

The key is Denison's view that people's behaviour is a reflection of organisational culture and that by measuring these behaviours one can essentially measure an organisation's culture (Fisher & Denison, 2000). Business's confusion about what organisational culture is, how it can be measured and what it can add to the bottom-line results of the company requires clarification.

Managing corporate culture, as deemed necessary by the chief executive of a financial institution in South Africa, has emerged as a top priority for most business leaders (Vermaak, 2001). Cultural norms, values and rituals are being increasingly recognised as the key factors that either enhance or retard change initiatives (Bellinghan, Cohen, Edwards & Allen, 1990).

Vermaak (2001, pp 1-2), former CE of a South African based financial institution had the following to say in his speech launching the company's new vision, values and business strategy:

> September 2001 marked a critical turning point in (our) business journey. The destination has not altered, but the means to get there has been given a significant boost by a new vision, a new business strategy and an energetic new image. We cannot afford to ignore the changes in the market. There is more competition and a greater choice of similar products and services for consumers. What's more, clients are less loyal than before, but they expect more from the companies they do business with.

Vermaak (2001) indicated that the company's culture would have to change. The initial challenge lies not with the change of the organisational culture, but with understanding what corporate culture is as well as an understanding of the effects of culture on aspects of the organisation that are cause for concern and/or celebration. Before the organisation can embark on a journey to change its corporate culture,

however it needs to measure the culture with a reliable instrument. Denison and Neale (1996) developed the Denison Organisational Culture Model. Based on this model, they developed an instrument, the Denison Organisational Culture Survey (DOCS) to assess organisational culture in the context of the relationship between the organisational culture and the performance of the organisation. If the reliability of the DOCS can be tested, it can be employed to measure the culture in an organisation. This serves as motivation to test the reliability of the DOCS – a tool used to measure organisational culture.

Although the validity of the DOCS has been analysed in other studies – specifically when the instrument was first developed – the validity should not be generalised if the reliability of the instrument for the specific population for which it is to be used, has not been investigated. This study will be undertaken to determine the reliability of the DOCS by explaining the latest theory in organisational culture and its impact on the bottom line of an organisation.

1.3   PROBLEM STATEMENT

If organisational culture directly affects performance (Fisher & Denison, 2000), it is essential that the instrument being used to measure culture in the organisation should be reliable. According to Sternberg and Wagner (1986), the question of instruments that have not been validated for the particular criteria they are required to measure may produce poor results, which in turn could lead to poor decision-making on a probable culture change.

The DOCS, which is an instrument used to measure culture, is based on an American model. Although it is used in South Africa, it has not been standardised for South African financial institutions. This is an important initiating factor to motivate this research.

As a prelude to the study of the reliability of the DOCS, it is essential to address the following research questions.

1.4   RESEARCH QUESTIONS

Various questions are formulated around the problem statement. A general research question is posed below, followed by specific research questions on the review of relevant literature and the empirical study.

1.4.1   General research question

Is the DOCS a reliable tool to measure organisational culture in a South African financial institution?

1.4.2   Specific research questions relating to the literature review

The following specific questions are posed for the literature review.

(1) How is organisational culture conceptualised in the literature?

(2) What are the dimensions of organisational culture as described in the literature?

(3) What are the theoretical underpinnings of the Denison Organisational Culture Model and DOCS?

1.4.3   Specific research question relating to the empirical study

How reliable is the DOCS for measuring organisational culture in a South African financial institution?

1.5   AIMS OF THE RESEARCH

Corresponding to the research questions posed above, a general aim is stated below, followed by specific aims relating to the review of the literature and the empirical study.

1.5.1 General aim

The general aim of this research is to determine the reliability of the DOCS for use in a South African financial institution.

1.5.2 Specific aims of the literature review

The following specific aims, corresponding to the research questions posed in section 1.4.2, are stated in terms of the literature review:

1.5.2.1   Specific aim in respect of the literature review on organisational culture

(1) To investigate the conceptualisation of organisational culture.

(2) To explore the dimensions of organisational culture.

(3) To explore the Denison Org Culture model as basis for DOCS

1.5.3 Specific aim of the empirical study

To determine the reliability of the DOCS for application in a South African-based financial institution.

1.6   METACONTEXT OF THE RESEARCH

Mouton and Marais (1992) describe the disciplinary and paradigmatic contexts of research in the social sciences. The disciplinary relationship and psychological paradigms applicable to this research are described below. This is followed by a summary of relevant theoretical and empirical concepts.

1.6.1 Disciplinary relationship

This study is conducted in the context of the social sciences, specifically in the discipline of industrial psychology. The research is conducted to resolve an

organisational problem using the methods and concepts from the sub discipline of psychometrics and organisational development. The application of industrial psychological theories and methodologies to resolve problems in industry lies at the heart of the contribution of industrial psychology to human and organisational welfare (Ivancevich & Matteson, 1990).

1.6.2 The paradigm perspective

Jordaan and Jordaan (1986) define a paradigm as a representation of reality and the way in which this reality can be examined. A paradigm has a proposition or series of assumptions about human nature, and systematises the gathering, interpretation and application of knowledge about the functioning of human beings (Jordaan & Jordaan, 1986). According to Mouton and Marais (1992), paradigms imply particular assumptions about the nature and structure of research at the individual project level. The research is predominantly guided by the paradigms of cognitive behaviourism, functionalism and empiricism. These paradigms are discussed below.

1.6.2.1 Cognitive behaviourism

At the project level (Mouton & Marais, 1992), the cognitive behaviourist is internalised into the research, particularly in the review of literature on organisational culture. Jordaan and Jordaan (1986) describe the central assumption of the cognitive behaviourist paradigm as the fact that stimuli do not exercise direct control over the behaviour of an organisation. According to Lundin (1996), this paradigm differs from the more clinical behaviourist paradigm in that learning does not take place in a pure stimulus–response manner, but in a stimulus–cognitive-processing–response manner. Stimuli are processed by the organism into an organised cognitive structure. Various cognitive abilities are utilised to make sense of the environment.

1.6.2.2   Empiricism

From an epistemological perspective, the research is empirical (Mouton & Marais, 1992). Knowledge is acquired and evaluated in terms of the reliability of the observations.

This emphasises the design and conduct of the research according to the scientific method. According to Mouton and Marais (1992), the scientific method comprises the stages of induction (observing phenomena and accounting for them in terms of relevant theory), deduction (predicting further events that may occur under certain hypothetical conditions) and verifying each specified hypothesis. Human behaviour is assumed to be measurable and the assumption is made that it can be explained using statistical analysis (Morgan, 1980).

Adopting these paradigms allows the researcher to study and understand what organisational culture is, how it impacts on employees' behaviour and on the organisation's performance. It compels the researcher, in the review of the literature, to consider what will be required to measure organisational culture and how it affects the organisation as a system. The DOCS that measures culture can then be administered and interpreted in the process of making decisions about the next steps in creating a new high performance business culture for a financial institution. These hypotheses can then be statistically verified by empirical study to determine the reliability factors related to the instrument.

The discussion and review will encompass various metatheoretical concepts, including but not limited to organisational culture, culture change, impact of culture and culture change on performance, leadership, involvement, adaptability and consistency.

The central theoretical statement that will be addressed is: *The DOCS is a reliable tool to measure organisational culture in a South African-based financial institution.*

1.7 RESEARCH DESIGN

The study included a literature review and an empirical study. The first part of the study was devoted to a literature review of the selected literature available on the concept of organisational culture, how organisational culture can be measured and its impact on organisational performance. The second part of the study covered an empirical analysis of the reliability of the DOCS. The unit of analysis comprised the organisation.

For the purposes of this research, the quantitative approach can be described in general terms as the approach to research in the social sciences that is more formalised and more explicitly controlled, with a range that is more exactly defined, and which, in terms of the methods used, is relatively close to the physical sciences (Mouton & Marais, 1988).

A moderating factor is the lack of evidential studies on the validity and reliability of the Denison Model in the South African context. In research of this nature, the literature advises that reliability should be determined first – as a minimum psychometric prerequisite, followed by validity (Mouton & Marais, 1988). Accepted statistical means of the Pearson product-moment and Spearman-Brown correlation coefficients, based on split-half design was used to determine the reliability of the results of the study. To determine the internal consistency based on the average inter-item correlation, the Cronbach alpha statistics was used.

An exploratory factor analysis was conducted to initially investigate the factorial structure of the instrument in a South African sample.

1.8 RESEARCH METHOD

This study was divided into two phases, namely a literature review and an empirical study.

1.8.1 Phase 1: Literature review

Phase 1 endeavoured, by means of a qualitative literature review, to determine the following:

- How organisational culture is defined and the dimensions underlying organisational culture (chapter 2)
- How the Denison Organisational Model is operationalised in culture measurement interventions (chapter 3)

1.8.2 Phase 2: Empirical study

Phase 2, the empirical study, comprised a quantitative investigation into the reliability of the DOCS in a South African financial institution. In determining the reliability of the DOCS, the research design was structured according to the following steps:

(1) The Denison Organisational Culture Survey was described with special reference to previous research on reliability and validity (in chapter 3).

(2) Reliability and the different types of reliability were outlined (chapter 3).

(3) An exploratory factor analysis was conducted to initially investigate the factorial structure of the instrument in a South African sample.

(4) To determine reliability, 2 735 responses were used to establish internal consistency using the Cronbach alpha. Accepted statistical means of the Pearson product-moment and Spearman-Brown correlation coefficients, based on split-half design was used to determine the reliability of the results of the study.

(5) From these results, the conclusions and recommendations regarding the reliability of the DOCS were formulated.

1.8.2.1 *Methodological assumptions underpinning reliability*

According to Leedy (1993), measurement applied to this research was defined as "limiting the data of any phenomenon – substantial or insubstantial – so that those data may be examined mathematically and ultimately, according to an acceptable qualitative or quantitative standard". The type of measurement that is relevant here is the nominal level of measurement that divides data into discrete categories that

can be compared with each other (Huysamen, 1978). The insubstantial data that are measured and applicable to the research involves the concept of organisational culture, and the measuring instrument that was used is classified as an organisational culture survey, namely the DOCS. In any type of measurement, two considerations are of vital importance and also of particular relevance to this research. One of these is reliability and the other validity (Huysamen, 1978). This study focuses on reliability only because reliability analysis allows the author to study the properties of measurement scales and the items comprising them. The reliability analysis procedure calculates a number of commonly used measures of scale reliability and also provides information on the relationships between individual items in the scale.

1.8.2.2   *Population and sample*

The population consists of all the full-time employees employed at the financial institution (p=5200). Since all the employees received the survey electronically with a cover letter from the chief executive, encouraging them to participate in the study, the sampling method can be described as random (Mouton, 1996). Every employee could choose whether or not to complete the survey.

1.8.2.3   *Measuring instrument*

The DOCS is used as described in Chapter 3.

1.8.2.4   *Data collection*

Survey questionnaires were sent electronically (via the company's electronic communication system) to every employee who was requested to participate in the survey. Since the questionnaires were to be completed on-line, they were be collated electronically.

1.8.2.5 Data processing

The questionnaires were scored, analysed and interpreted electronically by means of the Lotus Notes SNAP® Software. No human intervention was used in processing the data. Accepted statistical means were used to provide data on the descriptive statistics of the sample, and the results of the study.

To explore the dimensionality of the scale items of the DOCS (construct validity), an exploratory factor analysis was initially conducted. The focus of the research however is on reliability and two types of reliability analyses were employed.

Reliability was firstly determined by means of the split-half reliability method. The split-half reliability method was first employed, because it splits the scale into two parts and examines the correlation between the parts (Rust & Golombok, 1989). For this technique, the survey was split in two to provide two half-size versions of the survey. This was done randomly to obtain a pseudoparallel form in which there is no systematic bias in the way in which items from the two forms are distributed with respect to the specification (despite the fact there are not necessarily parallel items within each cell of the survey specification). The two forms from the odd and even items of the questionnaire – within each of the subtraits were be taken respectively, because this gives the actual content of the items a random spread. Two scores were thus obtained for each individual, one for each half of the test, and these were be correlated with each other, using the Pearson product-moment correlation coefficient (Rust & Golombok, 1989). The resultant correlation itself does not represent reliability. It is the reliability of half of the survey instrument. This is of no immediate use because it is the whole instrument with which the researcher has to deal.

The reliability of the whole instrument was obtained by applying the Spearman-Brown formula to this correlation:

$$r_{test} = (\,2 \times r_{half}\,) \,/\, (\,1 + r_{half}\,),$$

where r_{test} is the reliability of the test, and r_{half} is the correlation obtained between the two halves of the instrument.

Cronbach alpha was also employed as an indication of internal consistency. Cronbach alpha provides an estimate of consistency of responses to different scale items and it is considered to be the strongest indication of reliability (Rust & Golombok, 1989).

1.8.2.6   *Reporting and interpretation of results*

The results generated by the study in terms of the reliability of the DOCS in accordance with the specific aims of the empirical study will be presented in by reporting on the Spearman-Brown correlation coefficient as well as the Cronbach alpa for the total DOCS scale as well as for the four subscales. Results of the esxporatory factor analysis will be reported.

1.9   CHAPTER DIVISION

The rest of the study is divided into the following chapters:

Chapter 2:   Organisational culture

Chapter 3:   Measurement of organisational culture

Chapter 4:   Empirical study

Chapter 5:   Conclusions, limitations and recommendations

1.10   CONCLUSION

This chapter outlined the background to and motivation for the research. Research clearly indicated that, regardless of the size, sector, industry or age of a business, culture affects performance. From this it was concluded that organisational culture needs to be managed or changed in order to manage organisational performance.

If organisational culture directly affects performance, it was concluded essential that the instrument being used to measure culture in the organisation should be reliable. The problem statement that this research will attempt to resolve was identified in the context of the question of instruments that have not been validated for the particular criteria they are required to measure may produce poor results, which in turn could lead to poor decision-making on probable culture changes. The relevant research

question developed encompassed the reliability pf the DOCS for measuring organisational culture in a South African financial institution. The aims of the research were linked to this.

This study was approached in the context of the social sciences, specifically in the discipline of organisational/industrial psychology. A paradigmatic perspective of the research was given, as predominantly guided by the paradigms of cognitive behaviourism, functionalism and empiricism. That included metatheoretical assumptions, typologies, theories and models as well as methodological assumptions. In conclusion the research design and research methodology were outlined and a division of chapters set out.

The lack of evidential studies on the validity and reliability of the Denison Model in the South African context was seen as a moderating factor in this research. In this type of research, literature advised that reliability should be determined first – as a minimum psychometric prerequisite, followed by validity. It was thus decided that the accepted statistical means of the Pearson product-moment and Spearman-Brown correlation coefficients, based on split-half design would be used to determine the reliability of the results of the study. To determine the internal consistency based on the average inter-item correlation, the Cronbach alpha statistics were to be used. An exploratory factor analysis was to be conducted to initially investigate the factorial structure of the instrument in a South African sample – all the full-time employees employed at the financial institution (p=5200).

CHAPTER 2: ORGANISATIONAL CULTURE

2.1   INTRODUCTION

The primary purpose of this chapter is to determine the relationship between organisational culture and organisational performance from a theoretical perspective. It is essential to gain an understanding of related research on culture in organisations, the way in which organisational culture is defined and the nature of the concept. No definition of organisational culture would be complete without a knowledge of the dimensions of culture, how it is created, transmitted and maintained in organisations, its functions and how it is managed and changed. To create a context for the rationale for the development of the DOCS, it is necessary to study the dimensions of organisational culture.

This chapter therefore examines the history of research on organisational culture in order to conceptualise it.   A number of definitions and characteristics of organisational culture are also explored. The differences and similarities between organisational culture and climate are analysed, because such an analysis is implicit in studying the conceptualisation of organisational culture.   To promote an understanding of the way organisational culture is developed and managed, the role of leadership in organisational culture will be investigated. Finally, the relationship between an organisation's culture and its performance as studied, among others, by Caroline Fisher in 1997, is explored.

2.2   BACKGROUND TO ORGANISATIONAL CULTURE

Research on organisational culture is certainly not a recent development. Prior to the publication of popular books such as Peters and Waterman's *In search of excellence,* Ouchi's *Theory Z* and Deal and Kennedy's *Corporate Cultures* in the 1980s, there was a steady stream of research on cultural phenomena in organisations dating back to the 1930s. All this research did not stem from a consistent theoretical perspective but much of it has yielded valuable insights that have been significant for the study of organisations (Trice & Beyer, 1993). The

publication of these works gave more prominence to cultural research in organisations.

A first systematic attempt to understand work organisations in cultural terms occurred in the late 1920s with the well-known Hawthorne studies. Findings from this research emphasised the importance of the culture of a work group, especially the norms relating to productivity and the attitude of workers towards management. Informal groups of workers were found to exert considerable control over the behaviour, including the productivity, of individual group members (Roethlisberger & Dickson, 1975). The norms were found to have a greater impact on productivity than either technology or working conditions (Schuster, 1986).

The human relations movement sparked by the Hawthorne studies was directly relevant to today's efforts to understand and manage corporate culture (Kilman, Saxton & Serpa, 1986). This raised the hope that organisational studies would become a major field for applied anthropologists. However, in succeeding years very few of them joined the pioneers. In this context, Trice and Beyer (1993) speculate that managers and academics were not sufficiently receptive to this pioneering work on organisational culture to continue the research.

McGregor (1960), in *The human side of enterprise*, stated that most managers make incorrect assumptions about those who work for them. He was among the first to suggest practical applications of the findings on corporate culture, which emanated from the Hawthorne studies.

Likert (1961) in *New patterns of management* concluded that a genuine interest and an unselfish concern on the part of the superior in the success and well-being of his or her subordinates have a marked effect on their performance. He emphasised that the need for a corporate culture of cooperation exists and demonstrated that there was a significant correlation between employee attitudes and their performance.

Argyris (1964) made a strong case for reducing the amount of organisational control. Many constraints placed by organisations on human beings are self-defeating to the organisational goals of effectiveness and efficiency. He recommended that

management develop a climate in which problems could be expressed openly and in which employee hostility could be understood and accepted.

Drucker (1973), in *Management,* observed the reciprocal nature of the relationship between management and culture. He contended that culture should be managed, and management and managers, in turn, should shape culture.

Porter, Lawler and Hackman (1975) stress that change and development activities in organisations do not occur in a vacuum. They are always embedded in an existing organisational climate or culture, which has a vital impact on the degree of success of any efforts to alter or improve the organisation.

Ouchi (1981) in *Theory Z* suggested that involved workers are the key to increased productivity. Pascale and Athos (1981) assert that the prime determinant of success lies in the organisation's management.   They call for greater management sophistication in respect of "man-in-organisation", but also acknowledge that the effort to alter the managerial subculture will take a long time.

The study of organisational culture received a huge boost in the 1980s. Two books, *In search of excellence* (Peters & Waterman, 1982) and *Theory Z* (Ouchi, 1981) were widely interpreted as contending that organisational cultures were important for organisational productivity and adaptability. Soon after, two other publications, *The art of Japanese management* (Pascale & Athos, 1981) and *Corporate cultures* (Deal & Kennedy, 1982), attracted attention.

Peters and Waterman (1982) assert that the key to productivity is the "systems" within which employees work. The productivity-through-people concept is supported in a research study of 1 300 major US organisations. The report concludes that the dominant theme of US management practice will be the transformation of organisational culture towards more participative organisations that emphasise focussing attention on employee needs as a major corporate strategy (Schuster, 1986).

Pascale (1990) advocates that true growth is fuelled by the habit of inquiry. His study of successful chief executive officers led him to conclude that each problem these men solved created the opportunity to solve the next problem that their last solution had created. They displayed the characteristic of not just "having-the-answers" but "living-in-the-question". They asked questions not merely to generate answers but to reveal *what is possible*. He argues for an organisational change in which everything should be questioned and for the development of mechanisms to correct organisational excesses.

Revitalisation of the study of organisational culture in recent years was triggered by two parallel developments. One was the turbulence and difficulties that US firms were experiencing in competing with organisations from countries with vastly different cultures. The second was a growing realisation by some organisational scholars that structural-rational approaches to understanding organisations missed crucial aspects of how organisations function and how they affect the lives of their members (Trice & Beyer, 1993).

According to Kilman (1984), situational forces and key individuals shape organisational culture. The situational forces are the organisation's mission, its setting and what is required for success, for example, quality, efficiency, reliability, customer service, innovation, hard work and loyalty. In the formation of an organization, a tremendous energy is released as employees bring it into being. As the reward systems, policies, procedures and rules governing work are formally documented, they have a more specific impact on shaping the initial culture by suggesting what behaviours and attitudes are important for success.

However, Kilman (1984) and Trice and Beyer (1993) view these situational forces, as being subordinate to the actions of key individuals such as the founder of the organisation who brings with him or her, his or her objectives, principles, values and particularly his or her behaviour. These provide important clues to employees about what is really expected of all members. In carrying on the traditions of the founder, other top executives affect the culture of the company by their every example. Employees also take note of critical incidents that stem from management action. Incidents like these become the folklore that people remember, indicating what the

organisation really expects and what really counts in getting ahead, that is, the unwritten rules of the game (Kilman, 1984).

According to Trice and Beyer (1993), because culture forms around a recognised need, the setting and the specific task requirements, it may be functional. However, over time, it becomes a separate entity, independent of the initial reasons and incidents that formed it. Kilman (1984) states that culture becomes distinct from the organisational formal strategy, structure and reward systems. As long as it continues to be supportive of and in harmony with these formally documented systems, the culture remains in the background.

Sathe (1985) adds that because the founder had the original idea, he or she will typically have biases on how to have the idea fulfilled – that is, biases based on previous cultural experiences and personality traits report a similar process. As a rule, entrepreneurs are extremely strong-minded about what to do and how to do it. Typically they already have strong assumptions about the nature of the world, the role their organisation will play in that world, the essence of human nature, truth, relationships, time and space. Ten mechanisms are cited that founders and key leaders use to embed values.

According to Sathe (1985) and Kilman (1984), the design of physical spaces, deliberate role modelling, explicit reward systems, legends, myths and parables about key people and events, the things that leaders focus on, measure and control, reactions to critical events and organisational crises, organisational design and structure, systems and procedures and criteria used for recruitment and selection, are formal statements of organisational culture. These mechanisms are not equally strong in practice but they can reinforce one another to make the total message more potent than the individual components (Sathe, 1985).

Schein (1988) mentions that the roots of organisational culture are to be found in the organisation's solution to external and internal problems, which have been found to work consistently for a group and therefore taught to new members as the correct way to perceive, think about and feel in relation to these problems. Organisations are to some degree integrated by basic assumptions about broad human issues that

embody fundamental concepts of time, space and the nature of things. Organisational members tend to be unconscious of those values and take them for granted once a group has had enough of a history to develop a set of basic assumptions about itself.

Schein (1988) maintains that culture is essentially learned through two interactive mechanisms, namely anxiety and pain reduction – the social trauma model and positive reward and reinforcement. This is known as the success model. From the beginning, a group will encounter basic anxiety stemming from uncertainty about whether the group will serve and be productive and whether the members will be able to work with one another. Cognitive and social uncertainty is traumatic, leading group members to see ways of perceiving, thinking and feeling that they can share and make life more predictable (Schein, 1988). The founder may have his or her own preferred ways of solving these problems but these will only become embedded in the group if it shares in the solutions and sees how they work. One of the problems with this learning mechanism is that once people learn how to avoid a painful situation, they continue to pursue this course without testing to see whether the danger still exists. The organisation that carefully engineers everything cannot find out whether customers would accept a less well-engineered and less costly product. Trauma-based learning is hard to undo because it hinders testing for changes in the environment (Schein, 1988).

The second learning mechanism, positive reinforcement, implies that people repeat what works and give up what does not (Schein, 1988). He postulates that if a company begins with its founder's belief that the way to succeed is to provide good service to customers and if that action based on that belief succeeds in the marketplace, then the group will learn to repeat whatever worked and gradually to accept this as a shared view of how the world really is - thereby creating a piece of its culture. This learning mechanism differs from trauma-based learning in that it produces responses that continually test the environment. It can, however, produce behaviour that is extremely resistant to change if the environment is inconsistent, producing success at one time and failure at another (Schein, 1988).

According to Robbins (1990), an organisation's founders are the ultimate source of its culture. They traditionally have a major impact on the establishment of the early culture because they have a vision of what the organisation should be. Furthermore the organisation, in its early years, would have been smaller, making it that much easier to adopt the founders' perspective on how things are to be done.

Fillmore (1990) maintains that three primary variables, taken together over time, dynamically shape an organisation's core values. These variables are the strategic business decisions, the principals' philosophy of management and the employees' shared experiences. The core values describe the implicit principles that come into existence once an organisation has had a history of interaction. They are the principles that invisibly guide member behaviour and define an organisation's character and style.

2.3 THE CONCEPT OF ORGANISATIONAL CULTURE

Personality to the individual is what culture is to the organisation. It is a hidden but unifying force that provides meaning and direction (Green, 1989). In most literature this organisational personality is referred to as organisational culture - that is, a system of shared meaning, the system of beliefs and values that ultimately shape employee behaviour.

In the literature there is no shortage of definitions of organisational culture. Bower (1966), Pascale and Athos (1981), Deal and Kennedy (1982), French and Bell (1984) and Schein (1988) share the view that culture can be described as

- the dominant values espoused by an organisation
- the philosophy that guides an organisation's policy towards employees and customers
- simply the way things are done in an organisation
- the basic assumptions and beliefs shared by members of an organisation
- the prevailing patterns of values, attitudes, beliefs, assumptions, expectations, activities, interactions, norms and sentiments in an organisation

Smircich (1983), and French and Bell (1984) mention that there are patterns of beliefs, symbols, rituals, myths and practices that have evolved over time in every organisation. Together these constitute the culture. However, culture is not simply another variable or isolatable component of organisations. It is what organisations are (Smircich, 1983).

Schein (1988) views organisational culture as comprising of three elements. The most clearly visible level of culture is its artefacts and creations - that is, the technological output of the organisation, its written and spoken language and its members' overt behaviour. Culture at this level is visible, but not always decipherable. At a deeper level, Schein (1988) identifies values or a sense of what ought to be. Values gradually start a process of cognitive transformation into beliefs and ultimately assumptions that are found at an even deeper level of consciousness (Schein, 1988). If the espoused values are reasonably congruent with the underlying assumptions, then the articulation of those values into a philosophy of operating can be helpful in bringing the group together, serving as a source of identity and core mission.

Quinn (1988) defines organisational culture as the set of values and assumptions that underlie the statement: "This is how we do things around here." Although cultures tend to vary considerably, they share the common characteristic of providing integration of effort in one direction, while often precluding the possibility of moving into another direction. Organisational culture is also defined as a social force that controls patterns of organisational behaviour by shaping members' cognitions and perceptions of meanings and realities, providing affective energy for mobilisation, and identifying who belongs and does not (Ott, 1989).

Culture is the commonly held and relatively stable beliefs, attitudes and values that exist in an organisation (Williams, Dobson & Walters, 1990). Organisational culture is the patterned way of thinking, feeling and reacting that exists in an organisation or its subsectors (Tosi, Rizzo & Carrol, 1990).

According to Denison (1990), organisational culture refers to the underlying values, beliefs and principles that serve as a foundation for an organisation's management

system as well as the set of management practices and behaviours that both exemplify and reinforce those basic principles. These principles and practices endure because they have meaning for the members of an organisation (Denison, 1990).

White (1991) maintains that the culture of an organisation refers to the behaviour patterns and standards that bind it together, and that it should not be confused with climate, which is the short-term mood of the organisation. Culture is the sum of behaviour patterns, and is built up over years.

Kotter and Heskett (1992) view organisational culture as having two levels that differ in terms of their visibility and resistance to change. At the deeper level, culture refers to values that are shared by people in a group and that tend to persist over time. At the more visible level, culture represents the behaviour patterns or style of an organisation that new employees are automatically encouraged to follow.

Drennan (1992) states that organisational culture creates common understandings among members about what the organisation is and how its members should behave. Drennan (1992) refers to organisation culture as how things are being done in organisations. It is what is typical of the organisation, the habits, the prevailing attitudes, and the grown-up pattern of accepted and expected behaviour.

Harrison (1993) defines organisational culture as those aspects of an organisation that give it a particular climate or feel. Culture is to an organisation what personality is to an individual. It is that distinctive constellation of beliefs, values, work styles and relationships that distinguish one organisation from another. Green (1989) adds the perspective of organisational culture as a hidden but unifying force that provides meaning and direction. This organisational personality is referred to as organisational culture that is a system of shared meaning, the system of beliefs and values that ultimately shape employee behaviour.

All these definitions, however, have a central theme, namely that organisational culture refers to a system of shared meaning, the prevailing background fabric of prescriptions and proscriptions for behaviour, the system of beliefs and values and

the technology and task of the organisation together with the accepted approaches to these.

2.4   CHARACTERISTICS AND FUNCTIONS OF ORGANISATIONAL CULTURE

Literature with a utilitarian perspective on culture refers to it as activities proper to the organisation, as a mode of action or activity by which culture fulfils its purpose (Schein, 1988; Gray & Starke, 1988). Gray and Starke (1988) name seven characteristics of organisational culture:

(1) Rites and ceremonies.   These are occasions that draw attention to specific cultural events that have meaning for the organisation.

(2) Norms.   The defining aspect of a culture is the norms of behaviour that are formed and reinforced. Norms are created by the dominant forces in the culture and are perpetuated through formal and informal reward systems.

(3) Symbols. Symbols are methods of communication used by cultures to reinforce cultural norms. Symbols communicate subtle messages.

(4) Myths. Cultural myths are the folklore of organisational cultures. Most members of the culture have a story about an event that communicates an important piece of information about the culture.

(5) Socialisation process. Socialisation is the process by which new members of the culture are taught the norms of the culture and inducted into it. This process may be formal (eg training programmes) or informal (eg learning the ropes from co-workers).

(6) Language.   Language is a common distinguishing factor among cultures. Specific terminologies, phrases and buzzwords develop as cultures establish accepted behaviour patterns.

(7) Taboos.   Taboos are undesirable norms, that is, attitudes and behaviours not condoned by the culture.

Luthans (1992) names six distinct, yet similar significant characteristics of organisational culture:

(1) Philosophy. There are policies setting out the organisation's beliefs about how employees/customers should be treated.

(2) Dominant values. There are important values that the organisation advocates and expects members to share, such as high product quality, low absenteeism and first-rate efficiency.

(3) Norms. Organisational members adhere to standards of behaviour including guidelines on how much work to produce.

(4) Organisational climate. This is the overall "feeling" that is conveyed by the physical layout, the way in which members interact and the way in which members of the organisation conduct themselves in the presence of customers or other outsiders.

(5) Observed behavioural regularities. In their interaction with one another, organisational members use common language, terminology and rituals related to deference and demeanour.

(6) Rules. There are strict guidelines on getting along in the organisation. Newcomers must learn these in order to be accepted as full-fledged members of the group.

Diamond (1993) cites organisational culture as the product of social invention and interaction which is influenced by organisational history, artefacts, physical space, architectural design, degree of formality, social control involving professional and institutional modes of socialisation, shared symbols and meanings found in rituals and myths, organisational leadership, personalities, espoused and practised norms and values and management philosophies, groups as subcultures, host cultures and, finally, humour and play at work.

From yet another perspective, Trice and Beyer (1993) identified six characteristics of organisational culture:

(1) Historically based. Cultures cannot be divorced from their histories and they do not arise overnight. To develop a culture, people need to spend time together to

interact and share with one another common uncertainties and ways of coping with them.

(2) Emotionally charged.   Because cultures help to manage anxieties, their substance and forms are infused with emotion and meaning. People tend to cling to established ideologies and practices because they seem to make the future predictable by making it conform to the past. When ideologies and cultural practices are questioned, their adherents react emotionally.

(3) Collective.   Individuals acting on their own cannot produce cultures. They originate as individuals interact with one another. Individuals may devise specific ways of doing things but until these come to be collectively accepted and put into practice they are not part of a culture.

(4) Dynamic.   While cultures create continuity and persist across generations of members, they are not static but dynamic. Cultures continually change for a variety of reasons.

(5) Symbolic.   To assert that cultures are symbolic is to emphasise the expressive rather than the technical and practical side of human behaviour. Symbolism plays a vital role in cultural communication and expression because some things often stand for other things.

(6) Fuzzy.   Not only are cultures inherently symbolic, they are also fundamentally fuzzy. Modern organisations operate in uncertain and confusing environments, and this, in turn, causes imperfect cultural transmissions. Another source of fuzziness is that many subcultural influences in organisations emanate from occupational groups with different work-related uncertainties and experiences.

Schein (1988) pinpoints three functions that are fulfilled by organisational culture. Firstly, it plays a role in solving the organisation's problems related to survival. The problems of external adaptation specify the coping cycle that any system must be able to maintain in relation to its changing environment. According to Schein (1988) the problems of survival in the context of external adaptation are as follows:

- *Mission and strategy.* These entail obtaining a shared understanding of the core mission, primary task and manifest and latent functions.

- *Goals. C*onsensus on goals as derived from the core mission needs to develop.

- *Means.* Consensus needs to be reached on the means to be used to attain the goals such as organisational structure, division of labour, reward system and authority system.

- *Measurement.* Consensus must be developed on the criteria to be used in measuring how well the group is doing in meeting its goals such as the information and control system.

- *Correction.* Consensus is necessary on the appropriate remedial or repair strategies to be used if goals are not being met.

Secondly, culture plays a role in solving the organisation's problem regarding the integration of its internal processes to ensure the capacity to continue to adapt and survive (Schein, 1988) The internal issues that the organisation needs to deal with are as follows:

- *Ideology and "religion".* Every organisation faces unexplainable events to which meaning should be attributed so that members can respond to them and avoid the anxiety of dealing with the unexplainable and uncontrollable.

- *Power and status.* Every organisation must determine its pecking order, its criteria and rules on how one gains, maintains and loses power. Consensus in this area is crucial to help members manage feelings of aggression.

- *Rewards and punishments*. Every group has to know what its heroic and sinful behaviours are, what is rewarded and what is punished.

- *Group boundaries and criteria for inclusion and exclusion.* An important area of culture is the shared consensus on who is in and who is out, and the criteria that determine membership.

- *Common language and conceptual categories.* Members have to communicate and understand each other. If they cannot, a group is impossible by definition.

- *Intimacy, friendship and love*. Every organisation must determine its rules of the game for peer relationships, relationships between the sexes and the manner in which openness and intimacy should be handled in the context of managing the organisation's tasks.

Thirdly, culture does more than solve internal and external problems. It also serves the basic function of reducing the anxiety that humans experience when they are

faced with cognitive uncertainty or overload. It provides a system for sorting out from the mass of input, those things that must be attended to and a set of criteria for reacting to them (Schein, 1988).

Ott (1989) identified four functions of culture. Firstly, it provides shared patterns of cognitive interpretations so that organisational members know how they are expected to act and think. Secondly, it also provides shared patterns of affect, an emotional sense of involvement and commitment to organisational values and moral codes so that members know what they are expected to value and how they are expected to feel. Thirdly, culture defines boundaries allowing identification of members and non-members. Finally, culture operates as an organisational control mechanism, prescribing and prohibiting certain behaviours - adding to business' perceived confusion regarding organisational culture, the concept of organisational climate is often used to describe culture. To demystify organisational culture, it is essential to clarify the differences between organisational culture and climate.

2.5   DIFFERENCES   BETWEEN   ORGANISATIONAL   CULTURE   AND ORGANISATIONAL CLIMATE

During the early evolution of the culture perspective, the distinction between culture and climate was quite clear. Denison (1996) probably explained it in the simplest terms in stating that whatever culture is, it is not climate. Studying culture required qualitative research methods and an appreciation of the unique aspects of individual social settings. Studying organisational climate, in contrast, required quantitative methods and the assumption that generalisation across social settings was not only desirable, but was also the primal objective of the research. If researchers held notes, quotes or stories and presented qualitative data to support their ideas, they were studying culture. If researchers carried computer printouts and questionnaires and presented quantitative analysis to support their ideas, then they were studying climate.

Buono and Bowditch (1989) argue that although the terms "organisational culture" and "organisational climate" are often used interchangeably, there are basic differences between them. Organisational climate is defined as a measure of

whether people's expectations about what it should be like to work in an organisation are being met. Organisational culture, by contrast, is concerned with the nature of beliefs and expectations about organisational life. Climate is measured by organisational surveys as an indicator of the extent to which these employee beliefs and expectations are being fulfilled. Organisational culture, characterised by values and expectations, is more deep rooted and has a long-term perspective.

Blake and Mouton (1964), refer to a general concept of organisational climate which they term "organisational culture" stating that when a manager sees his or her responsibility as that of managing a culture rather than simply managing people to get them to work, the basic unit of development is no longer the individual considered separately and alone. While their arguments for total organisational development are convincing, they stop short of explaining what happens to the members of the organisation when the *climate* or *culture* is changed (Litwin & Stringer, 1968).

McGregor (1960) developed the notion of managerial climate, which is defined in terms of the manifestations of the assumptions of management. He asserted that the day-to-day behaviour of the immediate superior and other significant people in the managerial organisation communicates something about their assumptions about management, which are of fundamental significance. Many behavioural manifestations of managerial attitude create what is often referred to as the psychological climate of the relationship.

Litwin and Stringer (1968) subsequently focused on the consequences of organisational climate for individual motivation, thus supporting the general idea that climate encompasses both organisational conditions and individual reactions. Likert (1961, 1967) also contributed to this early literature by defining a set of dimensions thought to represent the most salient aspects of organisational climate. Litwin and Stringer (1968), for example, sought to define organisational environments in terms of eight climate dimensions, namely structure, responsibility, reward, risk, warmth, support, conflict and identity. Litwin and Stringer (1968) mention that the concept of organisational climate describes a cluster of expectancies and incentives and

represents a property of environments that is perceived directly or indirectly by individuals in their environments.

Tagiuri and Litwin (1986) define organisational climate as a relatively enduring quality of the internal environment of an organisation that is experienced by its members, influences their behaviour, and can be described in terms of the values of a particular set of characteristics or attributes of the organisation. Gordon and Cummins (1979) define climate as managers' perceptions of organisational characteristics such as structure, relationships between units, performance planning and decision-making processes.

Culture researchers were more concerned with the evolution of social systems over time (Schein, 1990), whereas climate researchers were generally less concerned with evolution but more focused on the impact that organisational systems have on groups and individuals. Culture argued for the importance of a deep understanding of underlying assumptions (Kono, 1990; Schein, 1990), individual meaning (Tosi et al, 1990) and the insider's view of the organisation.

According to Denison (1990), the debate over organisational culture and climate is in many ways an example of methodological differences obscuring a basic substantive similarity. The argument is not so much about what is being studied but how to study it. Denison (1990) adopts a stance on two grounds, namely that both concepts focus on organisation-level behavioural characteristics and the fact that both share a similar problem.

Trice and Beyer (1993) maintain that the concepts of culture and climate are often confused in the management literature and that they have distinctly different origins that give them somewhat different meanings. They state that organisational climate refers to psychological environments in which the behaviours of individuals occur, whereas climate studies focus on individually perceived and rather immediate experiences of organisational members. Citing other differences between the concepts, they argue that the techniques to measure the concepts are different, and finally, that climate lacks unique indicators.

An analysis of the debate thus far leads the researcher to conclude that these two research traditions should be viewed as differences in interpretation rather than differences in the phenomenon. Denison (1996) also argues that this approach will provide a stronger foundation for integration than the currently held assumption that culture and climate are fundamentally different and no overlapping phenomena.

2.6   A CONCEPTUAL MODEL OF ORGANISATIONAL CULTURE

In order to develop a clear understanding of what exactly the term "organisational culture" means for the purpose of this study, it is necessary to turn to Schein's (1988) conceptualisation of organisational culture.

Ott (1989) maintains that Schein's three-level model provides the most useful typology published to date for classifying elements of organisational culture into useable groupings.   Notwithstanding the fact that a number of authors have acknowledged and utilised this typology in their work, the literature on organisational culture is generally not well grounded in systematic theory and research. Work on the subject tends to be descriptive without a corresponding emphasis on prescription (Sathe, 1985). The fact that Schein's model has been adapted from time to time, perhaps suggests the beginning of a badly needed movement towards general agreement on a conceptual definition of organisational culture.

Figure 2.1 depicts Schein's model as amended by a number of authors. From the figure, it is evident that level 1A of organisational culture includes artefacts such as an organisation's written and spoken language and jargon, office layouts and arrangements, organisational structure, dress codes, technology and behavioural norms. According to Davis (1984), it is relatively easy to collect information about various artefacts because they are tangible. This, in turn, causes researchers to shy away from the more difficult task of interpreting the values and beliefs that lie behind them. He maintains that a culture exists in beliefs and values more than in artefacts and document.

Sathe (1985) describes artefacts as easy to observe but difficult to interpret without an understanding of the other levels. He maintains that this level represents the

slice of cultural reality in which most researchers have been interested. He denotes this level by the terms "organisational behaviour patterns" and "behaviour".

Ott (1989) has added a level 1B, patterns of behaviour, to Schein's model. Martin and Siehl (1983) first proposed this distinction, and labelled it "management practices". Ott (1989) prefers the broader phrase, patterns of behaviour, norms, which include such elements of organisational culture as habits, patterns of behaviour, norms, rites and rituals. These elements are consistent with the later defined concept of culture and do not appear to violate Schein's conceptualisation.

Figure 2.1   Schein's model of organisational culture

Level 1 A: Artefacts

Technology
Art
_____

Level 1 B: Patterns of behavior

Familiar management tasks
Visible and audible behavior patterns
Norms

⇧   ⇩

Level 2: Values

Testable in the physical environment
Testable only by social consensus

⇧   ⇩

Level 3: Basic Assumptions

Relationship to environment
Nature of reality times and space
Nature of human nature
Nature of human activity
Nature of human relationships

Level 2 reveals how employees communicate, explain, rationalise and justify what they say and do – how they make sense of the first level of culture. In addition to beliefs and values, level 2 constructs of organisational culture include ethos, philosophies, ideologies, ethics and attitudes. Level 2 elements of organisational culture appear to represent the true organisational culture and several theorists have in fact labelled it as such. These elements, however, do not provide accurate information about a true culture because of prevalent incongruence between

"espoused values" and "values-in-use" in organisations. Espoused values often serve important symbolic functions and may remain in an organisation for extended periods of time even though they are incongruent with values-in-use (Schein, 1988).

Level 2 elements of organisational culture often yield espoused values – what employees will say – rather than values-in-use, which can be used to predict what people will do (Ott, 1989).

Level 3 of organisational culture consists of basic underlying assumptions, which according to Schein (1992), have become taken for granted to such an extent that one finds little variation in a cultural unit. These basic assumptions have moved out of members' conscious into their preconscious because they have yielded successful results repeatedly over time.

Important distinctions need to be made between beliefs and basic assumptions. First, beliefs are conscious and can thus be identified without too much difficulty. Basic assumptions, on the other hand, are likely to have dropped out of awareness – they are there but have moved back into the recesses of the mind. Secondly, beliefs are cognitions, whereas basic assumptions include not only beliefs but also perceptions (interpretations of cognitions) and values and feelings (affects). Basic assumptions can thus be thought of as a comprehensive, but out-of-conscious system of beliefs, perceptions and values that actually guide behaviour, that tell group members how to perceive, think about and feel about things (Schein, 1988).

As in the case of beliefs and values, basic assumptions can be about almost anything that involves the organisation's relationship with its environment, such as its views of its clients or customers, its competitive or collaborative posture in the marketplace or among other government agencies, or its openness to using technology from other industries to solve problems. Assumptions can also be about almost anything related to an organisation's internal integration process such as the essence of human nature, the nature of human activity and the nature of human relationships (Ott, 1989).

To investigate the impact leaders in organisations have on organisational culture, it is necessary to state Ball and Ashbury's (1989) statement that leadership is about mastering corporate destiny, liberating human potential, bringing in the new and building strong cultures.

2.7   ORGANISATIONAL CULTURE AND LEADERSHIP

In their research into effective organisations Ball and Ashbury (1989) have found that leaders drive their organizations; they are intrepid inspectors relying on inspection and expectations; they fire up people with excitement; they get their hands dirty at the coalface; they blaze the trail in sniffing out business opportunities; they push their people to the extreme; they focus employees' attention on what they want; they unite the organisation around a vision of the future; they communicate constantly; and they draw and keep top people around them. Schein (1992) maintains that the unique function of leadership that distinguishes it from management and administration is the concern for creating, embedding and managing culture in the organisation.

These are examples of processes that Trice and Beyer (1993) refer to when they state that organisational cultures are created when leaders set social processes in motion to achieve their visions of what their organisations should be like and what they should attempt to accomplish.

2.7.1   The role of the chief executive in the organisational culture

Bennis (1986) believes that the principal determinant of organisational culture is the behaviour of the chief executive officer. He or she is the one responsible for shaping the beliefs, motives, commitments and predisposition's of all executives from senior management to the operators of the organisation. The culture that is thus shaped and sustained first and foremost represents a shared interpretation of organisational events so that employees know how they are expected to behave.

According to Nanus (1992), the chief executive's behaviour also generates a commitment to the primary organisational values and philosophy, that is, the vision

that employees feel they are working for and can believe in. A shared vision is a significant element in the system in as much that it creates meaning that allows members to make sense of their organisation. Nanus (1992) also states that the role of a leader is to create and transmit that meaning and vision so that employees may identify with it. A leader has to create a new social reality that is compelling, plausible and attractive. The leader's vision invites other people into that social reality. The creation of a vision is really an interactive process between a leader and followers. Having a vision is essential because it creates alignment among employees, and the right vision attracts commitment and energises people, establishes a standard of excellence, bridges the present and future and creates meaning in employee's lives (Nanus, 1992).

People generally would much rather have lives with a sense of purpose and direction than lives of aimless diversion. Creating a vision entails more than simply communicating it. It also means turning the abstract into something real and tangible.

In modern organisations, increasingly more attention is being focused on articulating a vision or desired future or end state. Beckhard and Harris (1985) cite a number of advantages of establishing a clear understanding of the desired future state. Optimism replaces pessimism because when defining a vision there is a tendency to be positive about future possibilities describing a favourable and desirable situation. The description of the future spells out detailed behaviour, which allows members of the organisation to visualise their own roles thus improving compliance. A vision also helps to reduce employee uncertainty, and finally, pulls management away from the tendency to attack symptoms and solve problems by focusing managerial attention on what is needed to make the organisation effective.

Jaques and Clement (1994) believe that chief executive officers can win the hearts and minds of their employees by creating a corporate setting that provides the necessary conditions for encouraging all employees to move in a common direction, to operate at their full individual capacity and to do so willingly and enthusiastically. Such a setting may be achieved by building and sustaining a corporate culture that

establishes appropriate constraints for employees within which to carry out their work.

According to Davis (1984), the guiding beliefs are invariably set at the top of the organisation and then transmitted down through the ranks. Culture, and therefore strategy too, is essentially a top-down matter. By ignoring culture, the chief executive officer will be formulating strategy without it being grounded in what the company stands for and he or she will be attempting to implement it without taking into account the major force for its success or failure. Caring for culture cannot be delegated. It can be shared, but responsibility and accountability lie with the chief executive officer.

Cornwall and Perlman (1990) maintain that leaders are the people who transmit and embed the culture in an organisation. They do this by what they pay attention to, what they measure and control, and particularly, by what they reward. Leaders, if they are consistent, model and represent the culture in everything they do. For example, if being close to the customer is important, leaders may from time to time leave the corporate headquarters to get out there to be with the customers.

Overseeing and adapting organisational culture is a key part of the chief executive's organisational leadership role. As he or she directs his or her organisation towards the desired future objective, he or she needs to ensure that the corporate culture is consistent with getting there and that the parts are internally consistent with each other. Senior executives therefore have to periodically review the various parts of culture to identify possible inconsistencies. In so doing, they have to consider compensation policies, managerial leadership training programmes, financial control procedures and their impact on individual initiative, custom and practices that may inhibit improvement. The chief executive officer's responsibility for managing the organisation's culture is about achieving future corporate objectives (Jaques & Clement, 1994).

By means of transactional leadership, the leader gets things done by making and fulfilling promises of recognition, pay increases and advancement for employees who perform well. Employees who do not do well are penalised. This transaction, the

promise and reward for good performance or threat of discipline for poor performance, is what characterises transactional leadership. Transformational leadership, on the other hand, occurs when leaders broaden and elevate the interests of their employees, when they generate awareness and acceptance of the purpose and mission of the group and when they cause employees to look beyond their own self-interest for the good of the group (Cornwall & Perlman, 1990).

These two types of leadership have different implications for organisational culture. The transactional leader works within the organisational culture, as it exists, whereas the transformational leader changes the culture. Aspects of organisational culture which the transactional leader accepts and the transformational leader changes include what can be talked about, who rules and by what means, work groups' norms, beliefs about ideology, morality, ethics, spare time and human nature. The transactional leader accepts and uses the rituals, stories and role models belonging to the organisational culture in communicating its values. The transformational leader, on the other hand, invents, introduces and advances the cultural forms (Bass, 1985). Peters and Waterman (1982) who concluded that excellent companies seemed to have developed cultures that have incorporated the values and practices of great leaders, and shared values could thus be seen to survive for decades, illustrate the significance of leadership for organisational culture.

Excellent companies become excellent because of a unique set of cultural attributes that distinguish them from the rest and which, in turn, have been shaped by the company's leadership (Peters & Waterman, 1982). Company founders are often transformational leaders who shape company policies, norms and values that dominate its culture. The set of values the founders articulate, their personal assumptions and visions of future become embedded in the emerging culture. However, the transformational leader who establishes the organisation's culture can be far removed in time from the company founder. It is therefore not surprising that organisational culture can be identified mainly as the product of a transformational leader (Bass, 1985).

2.8 THE RELATIONSHIP BETWEEN ORGANISATIONAL CULTURE AND ORGANISATIONAL PERFORMANCE

Atkinson (2002) maintains that, despite all the research and interventions developed over the years, much is said about organisational culture but little is still understood about how to develop that culture.

While corporate culture has been touted as essential to business success in these turbulent times, until recently, little proof of the link between the culture of a company and its performance could be cited.

Fisher (1997) initiated a study aimed at confirming the Denison Theory of Organisational Culture and Effectiveness and understanding more about how specific culture traits affect specific performance factors. Fisher (1997) labels the Denison model as more than a survey. It is positioned as a tool that can help organisations, divisions and teams, and the individuals within each, to attain the following:

- a baseline assessment of current cultural strengths and weaknesses
- an understanding of current culture relative to high-performing organisations – within a norm base of over 4 000 American companies
- a benchmark against which to target change efforts – relative to specific desired performance
- clear prioritisation of short-, mid- and long-term change efforts – relative to the results sought for each of these time frames
- an understanding of bottom-line-related performance (profitability, sales/revenue growth, market share, quality, innovation and employee satisfaction) with direct links to cultural elements which may be supporting or hindering these performance areas
- the development of individual leaders who can support and sustain the desired benchmarked culture
- a shared understanding, a shared language and shared expectations of culture and its implications for both individual and group results

- an understanding and utilisation of culture as a business oriented, behavioural, tangible and results-oriented mechanism – as opposed to the intangible, cumbersome and often difficult to implement notions of culture (refer also Denison, 1995)

Fisher (1997) also clarified how culture strength (organisation-wide agreement about culture) relates to organisational performance and judged the validity of using perceived qualitative corporate performance to predict perceived financial corporate performance. The study utilised survey methodology to examine the culture-performance link in 60 companies of various industries, sizes and sectors. The culture of each company was measured through ratings given by employees on four culture traits – involvement, consistency, adaptability and mission. Performance was measured through perceptions of top managers in each company regarding profitability/return-on-assets (ROA), sales/revenue growth, market share quality of products and services, product development/innovation and employee satisfaction.

Findings showed that there is a relationship between an organisation's culture and its perceived performance. It indicated poor clarity on the issue that there might be a relationship between an organisation's culture strength and its perceived performance. The study indicated that perceived qualitative performance factors in an organisation serve to predict its perceived financial performance factors. The Denison theory was confirmed and the use of perceptions of top managers to measure actual corporate performance was validated (Fisher, 1997).

Quality and employee satisfaction were the performance factors most heavily impacted by culture traits; however, post hoc analysis showed that each of these so-called "soft" measures were correlated with the "hard" factors of profitability/ROA and sales/revenue growth. These findings offer a strong argument for business leaders to improve financial performance, such as profitability and sales/revenue growth, by focusing on improvement of qualitative performance factors such as quality and employee satisfaction (Fisher, 1997).

Post hoc analysis showed that higher levels of the mission trait in an organisation to some degree predicted higher performance in five of six performance areas; the

involvement trait predicted performance in four of six areas; the adaptability trait predicted performance in three of six areas and the consistency trait predicted performance in two of six areas. Fisher (1997) states that it is therefore clear that business leaders setting out to improve their company's performance might be best served by first focusing on mission and involvement. To improve performance in all indicated areas, however, development in all four the culture trait areas must ultimately occur. Where most organisational culture models tend to ignore the basic paradoxes faced by businesses and their leaders, the Denison Organisational Culture Model embraces the deep challenges of leadership familiar to most business leaders today.

Contemporary business leaders need both higher quality *and* lower cost. They need precision *and* speed, growth *and* efficiency. They need to please both shareholders *and* employees; both regulators *and* customers – even when serving one appear to hurt the other (Denison, 1996).

The hard reality is that business leaders have to pay attention to the inside *and* the outside of their businesses; to the short term *and* the long term; to things that provide focus and precision; *and* to things that offer flexibility and fluidity. Denison's (1996) model reflects this reality as follows:

- *Mission* represents external focus and supports stability.
- *Involvement* represents internal focus and supports flexibility.
- *Adaptability* represents external focus and supports flexibility.
- *Consistency* represents internal focus and supports stability.

Denison's (1996) research shows that the highest-performing companies are those that show strength in all four areas. In other words, they have developed cultures that fully address the paradoxical demands facing them. They are crystal clear about why they exist and where they are going (*mission*). Their people embrace this defined direction, have line of sight from job to company goals, and bring the full complement of their skills to their work (*involvement*). They hear what their customers want or understand customer needs enough to lead their customers to

new products/services, and they are able to learn what is needed to respond to changing marketplace demands (*adaptability*). And they have systems, structures and processes in place to help align them as a company, while being both efficient and effective in producing results (*consistency*) (Fisher, 2000). The findings also show that there are relationships between individual culture traits and specific performance measures, as can be seen in table 2.1.

TABLE 2.1: Denison's findings on the relationship between individual culture traits and performance measures (adapted from Denison & Neale, 1996)

| Individual culture traits | Specific performance measures | | | | | |
	Profitability /return on assets	Revenue growth/ sales growth	Market share	Innovation	Quality of products and service	Employee satisfaction
	supported by	*supported by*	*supported by*	*supported by*	*supported by*	*supported by*
	Mission	Mission	Mission			[Mission]
	Involvement			Involvement	Involvement	Involvement
	Adaptability	Adaptability	Adaptability	Adaptability		Adaptability
	Consistency				Consistency	Consistency

Revenue growth and market share (both externally oriented performance measures) are supported by the externally oriented cultural traits of *mission* and *adaptability*. Quality and employee satisfaction (internally oriented performance measures) are supported by the internally oriented culture traits of *involvement* and *consistency.* Innovation (performance measure related to flexibility) is supported by the flexibility-enhancing culture traits of *involvement* and *adaptability.* The performance measure of profitability, by far the most comprehensive and complex measure of business performance, is supported by strength in all four cultural areas (Denison & Neale, 1996).

Findings of research conducted by Fisher in 1997 confirmed Denison's findings, and also extend the findings towards understanding what creates success in modern businesses. These findings revealed the following (Fisher, 2000):

- *Mission* alone, as a singular cultural factor, affects the greatest number of bottom-line performance measures in a company. If a company is thus simply clear on why it exists and has a vision, goals and strategies that are embraced throughout the company, five of the six performance factors can be affected.

- *Involvement* is the second most important culture trait, affecting four of the six performance measures (all except market share and sales growth).

- *Adaptability* affects three of the six (sales growth, market share and innovation).

- *Consistency* affects two of the six (quality and employee satisfaction).

2.9   CONCLUSION

This chapter pointed out that research on organisational culture is not a new development. It started with the Hawthorne experiments in the 1920s. Organisational culture is mainly developed by the organisation's founders and perpetuated and maintained by various socialisation programmes and human resources functions such as recruitment, selection, reward systems and training programmes. Organisational culture fulfils a number of vital functions relating to the organisation's survival and adaptation. It is also clear that organisational culture can be managed by activating certain levers, but that changes generally do not happen in a short space of time. Many dimensions of organisational culture have been defined over time. These are not unique and overlap to varying degrees. The fact that leadership is an important contributor to organisational culture not only in creating it but also in shaping changes to it was also discussed.

Two significant messages can be learnt from the literature research on the effect of organisational culture on performance. First, when an organisation is faced with a crisis or trying to produce a step change in results, management should not focus on *consistency* alone. When new systems, processes or structures are being introduced in an attempt to gain control, business leaders should focus on *mission* and *involvement* as well. Secondly, if a business leader wants to produce breakthrough results, he or she should focus on *mission* and *involvement.* Between these two culture traits, all six performance measures can be affected. The other two culture traits (*adaptability* and *consistency*) count for full and sustainable performance over the long run – but not without *mission* and *involvement.*

CHAPTER 3: MEASUREMENT OF ORGANISATIONAL CULTURE

3.1   INTRODUCTION

The purpose of this chapter is to explore the measurement of organisational culture in general and specifically through the DOCS. By discussing the dimensions of organisational culture, the researcher will first create the context for the measurement of the concept. The rationale underlying the model followed to develop a measure for organisational culture (Denison 1995), as well as the applications thereof will then be discussed. As a prelude to the study to determine the reliability of the DOCS, the description and development, including validity and reliability studies of the DOCS will be discussed. Finally, reliability and the various types of reliability important when constructing a measure will be discussed in detail as reliability forms the core objective in this research project.

3.2   MEASURING DIMENSIONS OF ORGANISATIONAL CULTURE

Overtly, culture implies the existence of certain associated and interdependent dimensions or characteristics that are measurable. Generally, however, during the research of organisational culture, the author could not find evidence of a specific set of uniform dimensions or characteristics. Evidence of explicit differences and similarities in terms of characteristics of organisational culture as viewed by various authors and researchers, was reported in Chapter 2.

Various examples of attempts to classify the dimensions of organisational culture is evident in literature and in an effort to integrate some of these, table 3.1 - Dimensions of organisational culture as defined by several authors - was compiled. From the contents it is clear that there are numerous different opinions on and attempts to define organisational culture and its dimensions. No consistent approach could be determined. For the purpose of this study, Denison's (1995) framework was used as the basis, and the other authors' dimensions integrated into the table.

Table 3.1: Dimensions of organisational culture as defined by several authors

	Denison	Bettinger	Robbins	Hewlett-Packard	Gordon	Likert	Peters & Waterman	Gordon & Cummings	Allen & Dyer	Rossiter	Harrison
	Organisation of work	Strategic org focus on goals & objectives	Individual initiative		Encouragement of individual initiative		Simple organisational structures	Organisational clarity			
	Communication flow	Openness in communication	Communication patterns	Social neighbour attitude		Communication processes		Organisational vitality			
	Emphasis on people	Attitude towards change		Employee importance		Motivational processes	Productivity through people	Human resource development			Person orientation
	Decision making							Decision making			
	Influence & control	Market and customer orientation	Control	Interorganisational cooperation	Action orientation						Power orientation
	Absence of bureaucracy	Sense of pride in the mission and objectives		Entrepreneurial spirit	Top management contact		Decentralised authority				
	Coordination	Performance standards	Risk tolerance	Customer orientation	Clarity of direction		Closeness to the customer		Policies & procedures		
	Job challenge						Knowing their business				
	Job reward		Reward system		Compensation			Compensation			
	Job clarity		Identity		Performance clarity & emphasis				Job involvement		Role orientation
	Supervisory support	Conflict resolution aimed at minimising dysfunctional results	Management support	Management style			Autonomous & entrepreneurial leadership	Management style	Leader-subordinate interaction	Empowerment of employees to contribute to results	
	Supervisory team building	Rituals to support & reinforce behaviour	Conflict tolerance		Conflict resolution				Confrontation		
	Supervisory goal emphasis	Commitment to the organisation	Direction		Organisational reach						Task orientation
	Supervisory work facilitation	Supervision		Pride in H-Packard			Strongly managed value systems	Performance orientation	Performance facilitation		
	Peer team building									Teamwork across boundaries	
	Peer goal emphasis			Attitude							
	Peer work facilitation										
	Group functioning	Teamwork							Training		
	Satisfaction			Atmosphere					Supportive climate	Shared sense of purpose	
	Goal integration	Values that contributed to success	Integration	Workmanship			Bias towards action	Organisational integration		Integration of employees with technology	

(Left margin, rotated: Dimensions of organisational culture)

Denison (1990), like Allen and Dyer (1980), Gordon and Cummins (1979), Litwin and Stringer (1968) and Robbins (1990), had a measurement approach. He applied the following 20 measures of organisational culture:

(1) organisation of work

(2) communication flow

(3) emphasis on people

(4) decision-making practices

(5) influence and control

(6) absence of bureaucracy

(7) coordination

(8) job challenge

(9) job reward

(10)job clarity

(11)supervisory support

(12)supervisory team building

(13)supervisory goal emphasis

(14)supervisory work facilitation

(15)peer team building

(16)peer goal emphasis

(17)peer work facilitation

(18)group functioning

(19)satisfaction

(20)goal integration

Denison (1990) was the first to identify measures of organisational culture and correlate them with organisational performance. The latter stance moved the financial institution involved to use the DOCS as a tool to measure its culture in order to obtain information on managing its bottom-line performance.

Denison's (1990) 20 dimensions of organisational culture were used in this research to contrast or compare the different models and/or definitions of organisational culture found in the literature. The similarities and/or differences between Denison (1990) and Bettinger (1989) can be found in table 3.1. Bettinger (1989) identified 12 dimensions that correlate relatively well with Denison's model.

While Denison (1990) looked at the organisation of work – how work is analysed, tasks grouped together and allocated to specific groups/teams - Bettinger (1989)

focused on the standards related to the tasks that need to be performed, from a performance standards perspective. Robbins (1990) and Gordon (1988) approached the organisation of work from an individual's perspective – in terms of how much initiative the individual shows. Whereas Litwin and Springer (1968) approached the dimension of organisational culture from the perspective of structure, Peters and Waterman (1982) defined culture from a managed value-systems perspective. Gordon and Cummings (1979) also looked at this dimension from an individual's perspective in the sense of how clear the organisation appears to him or her in respect of structure and organisation of work.

The emphasis on people proved to have the most prominence amongst all the authors covered in this literature study. Whereas Denison (1990) and Hewlett-Packard approached this dimension from a purely people-focused perspective, Bettinger (1989) described it from the perspective of an individual's attitude towards change. This approach ties in with Likert's (1967) attempt to define motivational processes and Harrison's (1972) person orientation. Peters and Waterman's (1982) definition proves to be similar to Gordon and Cummings' (1979) approach to human resource development.

Coordination as defined by Denison (1990) means more or less the same as Bettinger's (1989) definition of strategic organisational focus on goals and objectives. Hewlett Packard's customer orientation and Gordon's (1988) clarity of direction, are similar to Peters and Waterman's (1982) closeness to the customer. This definition is similar to Robbins's (1990), Litwin and Springer's (1968) approach to risk or risk tolerance and Allen and Dyer's (1980) view of the importance of policies and procedures in defining and measuring organisational culture.

Harrison (1972) created what he called a *culture framework*, which provides for four different cultural orientations in organisations:

(1) person orientation – the desire to serve the needs of the organisation's members, organisational life being principally guided by considerations of what would best satisfy the members' needs

(2) power orientation – the desire to dominate the environment and vanquish all opposition, organisational life being primarily governed by the use of power and politics

(3) role orientation – the desire to be as rational and orderly as possible, organisational life being governed chiefly by considerations of rights, privileges legality and legitimacy

(4) task orientation – the desire to get the job done and achieve results, organisational life being dictated mainly by what would facilitate task accomplishment

While Harrison (1972) approached his classification of organisational culture from a four orientations perspective, Rossiter (1989) suggested five dimensions that can be compared with Harrison's person and role orientation. Rossiter's (1989) dimensions are delegation, teamwork across boundaries, empowerment of employees to contribute to results, integration of employees with technology, and finally, a shared sense of purpose. Allen and Dyer (1980), on the other hand, identified seven scales along which culture may be measured namely, performance facilitation, job involvement, training, leader-subordinate interaction, policies and procedures, confrontation and supportive climate. Also in the measurement paradigm, Gordon and Cummins (1979) identified eight measures of organisational culture, namely organisational clarity, decision-making, organisational integration, management style, performance orientation, organisational vitality, compensation and human resource development. From a different perspective, Litwin and Stringer (1968) identified nine organisational climate measures, namely structure, responsibility, reward, risk, warmth, support, standards, conflict and identity. Robbins (1990) suggested 10 dimensions along which culture can be measured, namely individual initiative, risk tolerance, direction, integration, management support, control, identity, reward system, conflict tolerance and communication patterns.

Peters and Waterman (1982) identified eight characteristics of excellent organisations, namely a bias for action, closeness to the customer, autonomous and entrepreneurial leadership, productivity through people, strongly managed value systems, knowing their business, simple organisation structures and decentralised authority. Peters and Waterman's (1982) characteristics of excellent organisations

compare favourably with what most authors describe as dimensions of organisational culture. In contrast to Peters and Waterman's characteristic approach, Likert (1967) in the system 4 management approach, identified nine organisational variables, namely leadership, motivational forces, communication processes, interaction processes, decision-making processes, goal-setting processes, control processes, performance expectations and training.

From table 3.1 and the discussion above, it is evident that various researchers have applied a large number of dimensions of organisational culture that cannot be neatly categorised in terms of an overall organisational culture theory. In the measurement paradigm, some authors follow a performance management approach (Peters & Waterman, 1992) while others purely interrelate the constructs of organisational culture (Litwin & Springer, 1968). Most approaches single out leadership (management/absence of bureaucracy/mission and vision/entrepreneurial spirit), communication (interaction/social neighbour attitude) in their construct clarification. Goal emphasis, peer cooperation, job challenge and team building (Denison, 1990) are the constructs least used by authors of organisational culture.

3.3   THE RATIONALE FOR AND APPLICATIONS OF THE DENISON MODEL IN MEASURING ORGANISATIONAL CULTURE

The Denison model is more than a survey. It is a tool, which can help organisations, divisions and teams, and the individuals within each to attain (Denison 1990):

- a baseline assessment of current cultural strengths and weaknesses
- understanding of current culture relative to high-performing organisations – within a norm base of over 4 000 US companies
- a benchmark against which to target change efforts – relative to specific desired performance (Fisher & Alford, 2000)
- clear prioritisation of short-, mid- and long-term change efforts – relative to the results sought for each of these time frames

- understanding of bottom-line related performance (profitability, sales/revenue growth, market share, quality, innovation and employee satisfaction – with direct links to cultural elements which may support or inhibit these performance areas

- development of individual leaders who can support and sustain the desired benchmarked culture (Fisher, 1997)

- shared understanding, a shared language and shared expectations concerning culture and its implications for both individual and group results (Denison, 1995; Denison & Neale, 1996)

3.4 DESCRIPTION OF THE DENISON ORGANISATIONAL CULTURE SURVEY (DOCS)

3.4.1 Background

The DOCS is a tool for understanding, designing and developing an organisation's culture for high performance. The Denison Culture Model is based on 18 years of research on organisations of all sizes, in different sectors and industries across the USA. Nine hundred and fifty companies participated in the model design and a 59-item culture assessment, the DOCS, was produced (Denison & Neale, 1996).

As indicated in the graphic representation in figure 3.1, the questionnaire presents a set of 59 statements that describe different aspects of an organisation's culture and ways in which organisations operate. It employs a five-point response format varying from strongly disagree (1), disagree (2), neutral (3), and agree (4) to strongly agree (5).

Figure 3.1: Graphic representation of the Denison Culture Model (Denison, 1995)
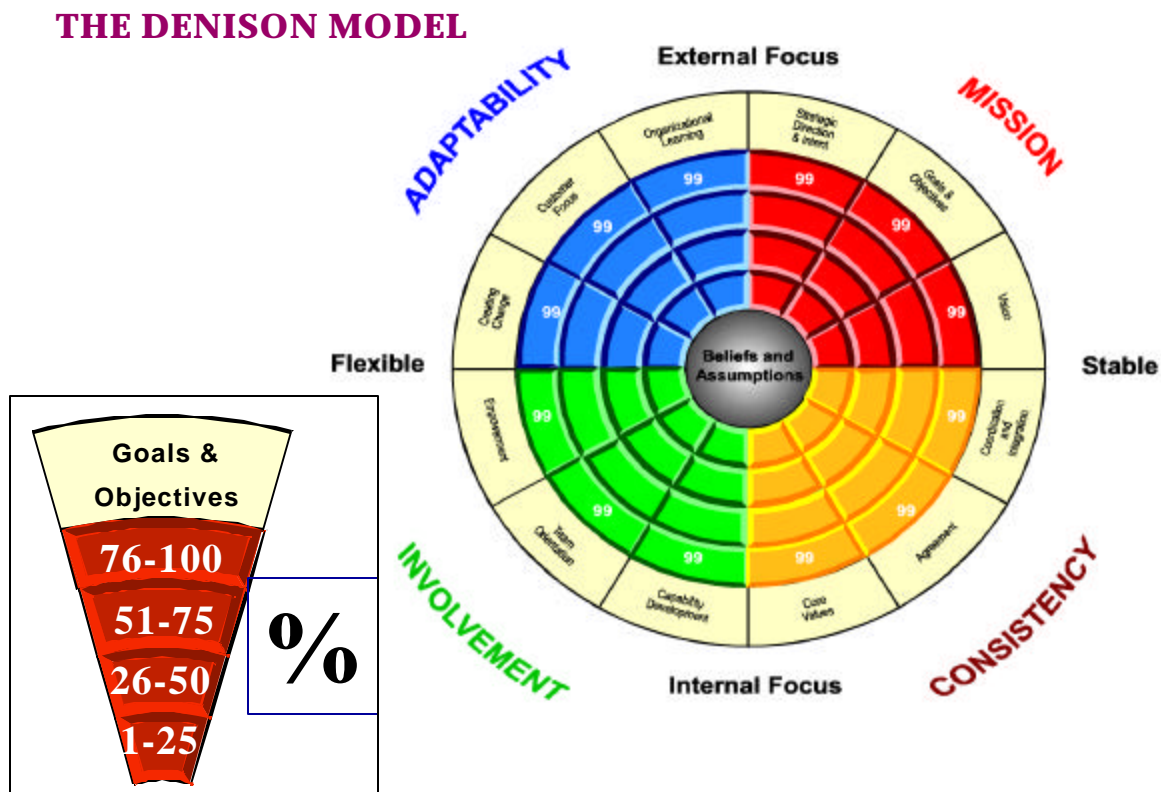
3.4.2 Factors of the model (organisational culture traits)

The electronic version of this paper-and-pencil test renders scores on four organisational culture factors depicted below, with three subtraits per factor. The factors are also referred to as the culture traits of an organisation. To facilitate an understanding of the DOCS, the four culture traits and subtraits as set out by Denison and Neale (1996) will be discussed below.

3.4.2.1 Involvement

This culture factor measures the degree to which individuals at all levels are truly engaged in and "own" the business direction, and are positioned to help the business succeed. It details three indexes or subtraits, namely:

(1) empowerment

(2) team orientation

(3) capability development

3.4.2.2   Consistency

This factor measures the degree to which the organisation has shared values, systems and processes that support achievement of the business mission and goals. This trait details the following three indexes:

(1) coordination and integration

(2) agreement

(3) core values

3.4.2.3   Adaptability

This factor measures the degree to which the organisation understands the customers' needs, can change in response to changing demands, and can learn new skills and technologies to support business success. The three indexes detailed in the trait are:

(1) creating change

(2) customer focus

(3) organisational learning

3.4.2.4   Mission

The mission factor measures the degree to which the organisation is crystal clear about its business direction. This trait details three indexes, namely:

(1) strategic direction and intent

(2) goals and objectives

(3) vision

3.4.3   Explanation of each of the traits and indexes

This part of the chapter provides a detailed discussion of each of the four traits and their component indexes or subtraits, and lists the items that make up each of the indexes as described in Denison and Neale (1996).

3.4.3.1   Involvement: building human capability, ownership and responsibility

Organisational cultures characterised as "highly involved" strongly encourage employee involvement and create a sense of ownership and responsibility. They rely on informal, involuntary and implied control systems, rather than formal, explicit, bureaucratic control systems. Out of this sense of ownership grows a commitment to the organisation and an increasing capacity for autonomy. Receiving input from organisational members increases the quality of the decisions and improves their implementation (Denison & Neale, 1996). The indexes of the involvement factor include empowerment, team orientation and capability development.

a.   Empowerment
Individuals have the authority, initiative and ability to manage their own work. This creates a sense of ownership and responsibility towards the organisation (Denison & Neale, 1996).

The survey items comprising the empowerment index are as follows:
- Most employees in this organisation are highly involved in their work.
- Decisions in this organisation are usually made at the level at which the best information is available.
- Information is widely shared in this organisation so that everyone can obtain the information he or she needs when it is needed.
- Everyone in this organisation believes that he or she can have a positive impact.
- Business planning in this organisation is ongoing and to some degree involves everyone in the process (Denison & Neale, 1996; Fombrun, Tichy & Devanna, 1984; Rossiter, 1989).

b.   Team orientation
Value is placed on working cooperatively towards common goals to which all employees feel mutually accountable. The organisation relies on a team effort to get work done (Denison & Neale, 1996).

The survey items comprising the team orientation index are as follows:

- Cooperation and collaboration across functional roles are actively encouraged in this organisation.

- Working in this organisation is like being part of a team.

- Work is sensibly organised in this organisation so that each person can see the relationship between his or her work and the goals of the organisation.

- Teams are the primary building block of this organisation.

- This organisation relies on horizontal control and coordination, rather than a hierarchy, to get work done (Denison & Neale, 1996; Bettinger, 1989; Rossiter, 1989).

c   Capability development:

The organisation continuously invests in the development of employees' skills in order to stay competitive and meet ongoing business needs (Denison & Neale, 1996).

The survey items comprising the capability development index are as follows:

- This organisation delegates authority so that people can act by themselves.

- The capability of the people in this organisation is viewed as an important source of competitive advantage.

- This organisation continuously invests in the skills of its employees.

- The "bench strength" of this organisation in constantly improving.

- Problems often arise in this organisation because employees do not have the skills necessary to do the job (Denison & Neale, 1996; Gordon & Cummings, 1979).

3.4.3.2   Consistency: a stable orientation which contributes to an organisation's capacity to remain stable and predictable over time

Consistency provides a central source of integration, coordination and control. Consistent organisations develop a mindset and a set of organisational systems that create an internal system of governance based on consensual support. They have highly committed employees, key central values, a distinct method of doing

business, a tendency to promote from within and a clear set of *do's and don'ts* (Denison & Neale, 1996).

Consistency creates a "strong" culture based on a shared system of beliefs, values and symbols that are widely understood by members of an organisation. Implicit control systems based on internalised values can be a more effective means of achieving coordination and integration than external-control systems that rely on explicit rules and regulations (Denison & Neale, 1996).

The power of this method of operation is particularly apparent when organisational members encounter unfamiliar situations. It enables individuals to react better in a predictable way to an unpredictable environment by emphasising a few general, value-based principles on which actions can be grounded (Denison & Neale, 1996).

The indexes of the consistency factor include coordination and integration, agreement as well as core values.

a   Coordination and integration

Different functions and units of the organisation are able to work together well to achieve common goals. Organisational boundaries do not interfere with getting work done (Denison & Neale, 1996).

The survey items comprising the coordination and integration index are as follows:

- The approach to doing business is very consistent and predictable.
- There is good alignment of goals across all levels of this organisation.
- People from different organisational units share a common perspective.
- It is easy to coordinate projects across functional units in this organisation.
- Working with someone from another part of this organisation is like working with someone from a different company (Denison & Neale, 1996; Gordon & Cummings, 1979; Rossiter, 1989).

b   Agreement

The organisation is able to reach agreement on critical issues. This includes both the underlying level of agreement and the ability to reconcile differences when they occur (Denison & Neale, 1996).

The survey items comprising the agreement index are as follows:
- When disagreement occurs, employees work hard to achieve "win-win" solutions.
- This organisation has a strong culture.
- There is a clear agreement about the right way and the wrong way to do things in this organisation.
- It is easy for employees to reach consensus, even on difficult issues.
- Employees often have trouble reaching agreement on key issues (Denison & Neale, 1996; Rossiter, 1989).

c   Core values

Members of the organisation share a set of values that creates a sense of identity and a clear set of expectations (Denison & Neale, 1996).

The survey items comprising the core values index are as follows:
- There is a clear and consistent set of values in this company that governs the way it does business.
- This company has a characteristic management style and a distinct set of management practices.
- The managers in this company "practice what they preach".
- This organisation has an ethical code that guides employees' behaviour and tells them right from wrong.
- Ignoring the core values of this organisation will get one into trouble (Denison & Neale, 1996; Bettinger, 1989).

3.4.3.3   Adaptability: translating the demands of the business environment into action

Organisations have a system of norms and beliefs that support the organisation's capacity to receive, interpret and translate signals from its environment into internal behaviour changes that increase its chances of survival, growth and development (Denison & Neale, 1996).

Three aspects of adaptability impact on an organisation's effectiveness. First is the ability to perceive and respond to the external environment. Successful organisations are extremely focused on their customers and competitors. Second is the ability to respond to internal customers, regardless of level, department or function. The third is the capacity to restructure and reinstitutionalise a set of behaviours and processes that allows the organisation to adapt. Without this ability to implement adaptive response, an organisation cannot be effective (Denison & Neale, 1996).

Indexes of the adaptability factor include creating change, customer focus and organisational learning as explained below.

a   Creating change

The organisation is able to create adaptive ways to meet challenging needs. It is able to read the business environment, react quickly to current trends and anticipate future changes (Denison & Neale, 1996).

The survey items comprising the creating change index are as follows:

- This organisation is extremely responsive and changes easily.
- This organisation responds well to competitors and their changes in the external business environment.
- This organisation continually adopts new and improved ways of doing work.
- Attempts to change this organisation usually meet with resistance.
- Different units in this organisation often cooperate to create change (Denison & Neale, 1996; Gordon & Cummings, 1979).

b   Customer focus

The organisation understands and reacts to its customers, and anticipates their future needs. It reflects the degree to which the organisation is driven by a concern to satisfy its customers (Denison & Neale, 1996).

The survey items comprising the customer focus index are as follows:

- Customer comments and recommendations often lead to changes in this organisation.
- Customer input directly influences the organisation's decisions.
- All members of this organisation have a deep understanding of customer wants and needs.
- Direct contact with customers by members of the organisation is encouraged.
- The interests of the final customer are often ignored in this organisation's decisions (Denison & Neale, 1996; Fombrun et al, 1984).

c   Organisational learning

The organisation receives, translates and interprets signs from the environment into opportunities for encouraging innovation, gaining knowledge and developing capabilities (Denison, & Neale, 1996).

The survey items comprising the organisational learning index are as follows:

- This organisation encourages innovation and rewards those who take risks.
- This organisation views failure as an opportunity for learning and improvement.
- Many things "fall between the cracks" in this organisation.
- Learning is an important objective in the day-to-day work in this organisation.
- This organisation ensures that the "right hand knows what the left is doing" (Denison & Neale, 1996; Peters & Waterman, 1982).

3.4.3.4   Mission: defining a meaningful long-term direction for the organisation

A mission provides purpose and meaning by defining a social role and external goals for the organisation. It gives a clear direction and goals that serve to define an appropriate course of action for the organisation and its members. A sense of

mission allows an organisation to shape current behaviour by envisioning a desired future state. Being able internalise and identify with an organisation's mission contributes to both short- and long-term commitment to the organisation. Success is more likely when individuals and organisations are goal directed (Denison & Neale, 1996). The indexes of the mission factor include strategic direction and intent, goals and objectives, as well as vision.

a   Strategic direction and intent

This involves the organisation's plan to "make its mark" in its industry. Clear strategic intentions convey the organisation's purpose and clarify how everyone can contribute (Denison & Neale, 1996).

The survey items comprising the strategic direction and intent index are as follows:

- This organisation has a clear mission that gives meaning and direction to its work.
- This organisation has a long-term purpose and direction.
- The strategic direction of this organisation is unclear.
- This organisation has a clear strategy for the future.
- This organisation's strategy is leading other firms to change the way they compete (Denison & Neale, 1996; Gordon & Cummings, 1979).

b   Goals and objectives

A clear set of goals and objectives can be linked to the mission, vision and strategy, and provides everyone with a clear direction in their work (Denison & Neale, 1996).

The survey items comprising the goals and objectives index are as follows:

- There is widespread agreement about the goals of this organisation.
- The leaders of this organisation set goals that are ambitious but realistic.
- The leadership of this organisation has "gone on record" about the objectives they are trying to meet.
- The organisation continuously tracks progress against its stated goals.
- The people in this organisation understand what needs to be done for it to succeed in the long run (Denison & Neale, 1996; Gordon, 1988).

c   Vision

The organisation has a shared view of a desired future state. It embodies core values and captures the hearts and minds of the organisation's people, while providing guidance and direction (Denison & Neale, 1996).

The survey items comprising the vision index are as follows:

- Employees have a shared vision of what this organisation will be like in the future.

- The leaders in this organisation have a long-term orientation.

- Short-term thinking often compromises long-term vision.

- The organisation's vision creates excitement and motivation for its employees.

- The organisation is able to meet short-term demands without compromising its long-term vision (Denison & Neale, 1996; Bettinger, 1989).

3.5   DEVELOPMENT OF THE DOCS

This part of the study describes the validation of the DOCS as an important factor when evaluating the reliability of the instrument as discussed by Denison (1995). This discussion of the validity focuses on content validity and is divided into several parts: development of the survey items, data collection and feedback, statistical testing and analysis of the data.

The DOCS was developed after 18 years of research on organisational culture and effectiveness. The research showed a close relationship between the culture of organisations and their patterns of performance, and proposed a number of aspects of the cultures of organisations that have been included in the model. The research is outlined in Denison's work, *Corporate culture and organizational effectiveness*, and in a series of articles (Denison, 1984, 1990, 1995, 1996).

The result of the above-mentioned research was the development of the *Culture and Effectiveness Model* that underlies the DOCS. The model is centred on the four basic cultural traits of organisations discussed in the previous section. In developing the survey, there were two explicit goals. First, a set of items was to be developed to

measure the four traits in a way that would allow a description of the management practices linked to these traits. This meant that the items had to have high face validity – they had to describe a set of relatively familiar management practices in simple language. It also meant that the items had to reflect an action orientation, rather than an underlying psychological profile that was difficult to link to specific managerial action. This required the development of a broader set of measures than only the four underlying culture traits developed in the earlier research. In writing items for the survey, the focus was on developing three measures for each of the four cultural traits specified in the original model (Denison, 1984, 1990, 1995, 1996).

The second reason for developing the survey was to build a large database for future research that would include both further development and refinement of the survey measures and for systematic testing of the relationship between culture and performance with a large sample of organisations (Denison, 1984, 1990, 1995, 1996).

3.5.1 CONTENT VALIDITY OF THE DOCS

To be able to compare the reliability of the DOCS for use in South African financial institutions, it is necessary to investigate the reliability and validity of the instrument as calculated in the USA, the country of its origin. The following section describes the validity testing done prior to the publication of the survey in 1995, as discussed in Denison (1984, 1990, 1995, 1996).

In order to collect the data to do validity testing on the survey, a group of corporate research partners was established in Michigan. Over 100 organisations were requested to participate, drawing from previous clients and customers associated with either Orion/Aviat or the University of Michigan. Each participating organisation had to select a sample of 25 to 50 members of their organisation to use the survey on a trial basis. Over 40 organisations participated in the survey and a total of 960 individuals responded to it. In each organisation a representative sample was constructed by including members of the top management group, a horizontal slice of middle management and a diagonal slice of the organisation. Even in organisations where these guidelines were not followed, the size of the overall

sample and the diversity of the organisations that were sampled made this an excellent sample for the initial round of validity testing (Denison, 1984, 1990, 1995, 1996).

In each participating organisation, a member of the development team explained the survey, the data collection process and the feedback process to a contact person in the organisation. In several cases, the survey was introduced as a part of a presentation to top management, a meeting with the group that was going to be surveyed, or a management development workshop. The contact person in each organisation was then responsible for collecting the completed surveys and returning them to Aviat for scoring. At Aviat, the data were entered, double-checked, and then used to produce the feedback reports. The feedback reports included an overview of the data presented on the model, followed by an item-by-item presentation of the results (Denison, 1984, 1990, 1995, 1996).

Feedback reports provided data for both the overall indexes and for the individual items in terms of quartile scores. Quartile scores were used because they provided a simple classification of the firm in comparison with other organisations, rather than a complex set of means, standard deviations and percentage distributions. These quartile scores classified each organisation as a first, second, third or fourth quartile firm with respect to each item and index. A first quartile score meant that this organisation's score was in the lowest 25% of the organisations in the sample, while a fourth quartile score meant that this organisation's score was in the top 25% of the organisations in the sample. Comparing the 25th, 50th, and 75th percentile cut-point for each item and index using the sample of organisations established these quartile scores. Thus, each organisation was compared with a sample of organisations and not a sample of individuals (Denison, 1984, 1990, 1995, 1996).

3.5.2 Reliability of the DOCS

The first stage in the validity analysis was to establish the reliability of the items in each index. In order to do this, Cronbach's alpha was computed for each of the indexes to make certain that the written items all resulted in indexes that had internal consistency scores in the recommended range of 0,620 to 0,900. That first step in

the analysis showed that all the indexes had alpha coefficients within the range of 0,620 to 0,840. It was concluded that all of the 12 indexes had acceptable reliability. In cases where it was necessary to exclude items in order to obtain the target of five items for each of the 12 indexes, the items that increased the alpha coefficient for the index were excluded (Denison & Neale, 1996).

The second stage of the analysis was to do a confirmatory factor analysis to see if the index structure fitted the model itself. This model treated the 12 indexes as the observed measures and the four underlying culture traits as the "latent" variables. This structural equation model was estimated using LISREL 8.1 for Windows (Denison & Neale, 1996). The matrix used in this analysis is presented in table 3.2, and the model itself is depicted in figure 3.2.

TABLE 3.2: Correlation matrix for culture model (original US study results from Denison & Neal, 1996)

		1	2	3	4	5	6	7	8	9	10	11
1.	Empower-ment											
2.	Team orientation	0,680										
3.	Capability development	0,600	0,600									
4.	Core values	0,540	0,550	0,480								
5.	Agreement	0,550	0,590	0,480	0,600							
6.	Coordination & integration	0,560	0,650	0,490	0,550	0,580						
7.	Creating change	0,530	0,580	0,560	0,370	0,500	0,490					
8.	Customer focus	0,400	0,470	0,440	0,440	0,420	0,450	0,450				
9.	Organisa-tional learning	0,630	0,650	0,600	0,530	0,570	0,600	0,590	0,500			
10.	Strategic direction	0,530	0,580	0,570	0,530	0,530	0,520	0,570	0,460	0,560		
11.	Goals & ob-jectives	0,560	0,600	0,540	0,580	0,560	0,570	0,540	0,470	0,590	0,770	
12.	Vision	0,560	0,620	0,560	0,520	0,580	0,570	0,580	0,460	0,640	0,710	0,690

Figure 3.2. Confirmatory factor analysis of the culture and effectiveness model (Denison & Neal, 1996)
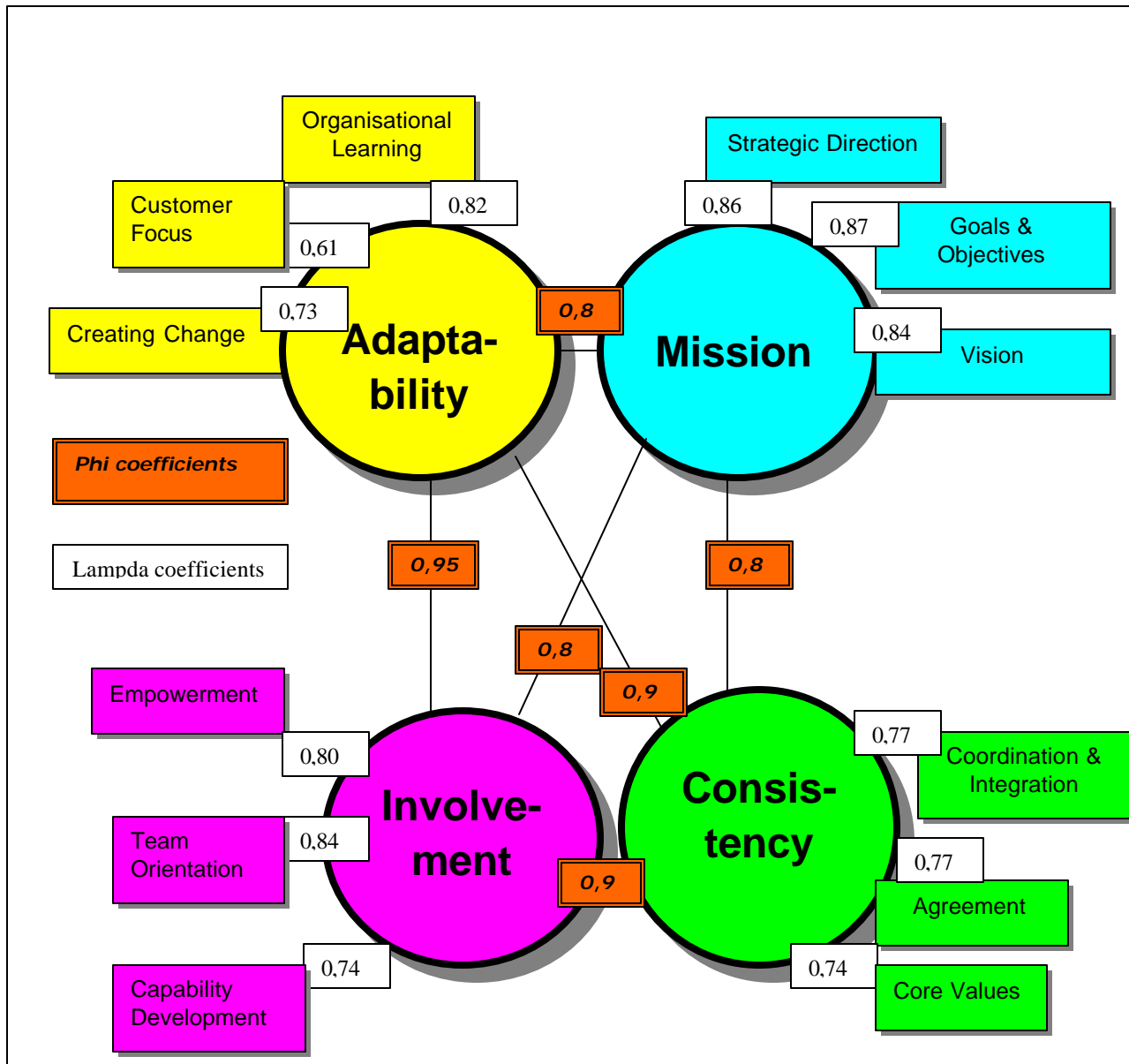
The model in figure 3.2 shows the lambda coefficients linking each of the indexes to the four culture traits (i.e. latent variables). These coefficients can be interpreted in the same way as factor loadings - a 1,000 lambda would mean that a particular index was perfectly correlated with the latent variable, whereas a lambda coefficient lower than 0,500 would indicate a relatively weak link between the index and latent variable. These linkages show that the loadings are strong and relatively consistent, indicating good support of the underlying model (Denison & Neale, 1996) – as demonstrated by the lowest coefficient of customer focus (0,610) and the highest of goals and objectives (0,870).

The second set of coefficients shown in the model comprises the phi coefficients linking the four latent variables of involvement, consistency, adaptability and mission. These coefficients are rather like inter-correlations between the four culture traits, although defining these four culture traits as latent variables in a structural equation model tends to inflate the phi coefficient to a higher level than a simple correlation. In this analysis, the phi coefficients are extremely high, indicating a close relationship between the four culture traits. This supports the idea that these are four characteristics of the cultures of the effective organisations. Thus, if (high-performing) organisations have one of these characteristics, they are also likely to have the other three. However, this also shows that the four culture traits may be less separable than the model suggests. Overall, however, this analysis does provide support for the model, defining these four culture traits as latent variables. It does estimate the relationship between them as 0,100 to 0,200 higher than a simple measure of inter-correlation would (Denison, & Neale, 1996).

The goodness of fit statistics used to evaluate structural equation models show that this model fits the data fairly well. The chi-square statistic with 48 degrees of freedom is 217,730 (p=0,000), the standardised root mean square residual 0,027 and the comparative fit index 0,970. These statistics show that despite the problems with the high interrelationships between the four culture traits, this analysis still meets the basic standards devised for evaluating structural equation models (Denison & Neale, 1996).

3.5.3 Predictive validity of the DOCS

Existing research on the culture and effectiveness model provides a solid background for the relationship between performance and effectiveness. Denison (1990) shows the relationship between several of the dimensions in the model and performance over a five-year period, while Denison (1995) presents a series of results linking the four basic culture traits to return on assets, sales growth and a range of subjective measures of performance. Finally, Denison (1995) presents an analysis linking the four culture traits to measures of quality and quality improvement.

3.6 RELIABILITY

The concept of reliability refers to the consistency of scores obtained by the same persons when re-examined with the same test on different occasions, or with different sets equivalent items, or under other variable examining conditions (Anastasi, 1990). Reliability is important because of its relationship with validity. The general rule is that a test or questionnaire can be reliable without necessarily being valid. However, it cannot be both valid and unreliable (Ghiselli, 1964). In other words, reliability sets the upper bound to validity and is a prerequisite for a valid measure.

The reliability of a questionnaire scale is normally expressed as the correlation between two or more sets of scores on the same scale for the same group of individuals (Finchilescu, 2002). There are three main types of reliability:

(1) test-retest reliability
(2) alternate form of reliability
(3) internal consistency reliability

Four methods are generally used to estimate the reliability of tests. They are, firstly, from the coefficient of correlation between scores on repetitions of the same test; secondly, from the coefficient of correlation between scores on parallel forms of a test; thirdly, from the coefficient of correlation between scores on comparable parts of the test; and fourthly, from the intercorrelations between the elements of a test (Finchilescu, 2002; Ghiselli, 1964; Smit, 1986).

Test-retest reliability is an estimate of reliability obtained by correlating pairs of scores from the same person (or people) on two different administrations of the same test. The test-retest measure is appropriate when evaluating the reliability of a test that purports to measure something that is relatively stable over time (Cohen, Montague, Nathanson & Swerdlik, 1988).

In the test-retest method the intercorrelations between the scores are taken as the reliability coefficient. According to Brown (1983), this method has two main

advantages. Some of the other methods for estimating reliability require more than one form of the test, but the test-retest method requires only the test itself. The other advantage is that when this method is used, the particular sample of items is held constant. The individuals are tested with precisely the same instrument. However, the method is not without problems.

According to Beech and Harding (1990), to obtain a retest reliability of 1,000, both a perfect measuring instrument and perfectly stable trait is needed. Even when the time period between the two administrations of the test is relatively small, it has to be noted that various factors such as experience, practice, memory, fatigue, stress, environment and motivation may be operative and render a confounded measure of reliability.

If the correlation between the scores on the two occasions is low, it is difficult to know whether the test is unreliable or whether different factors as mentioned, could have had an influence. It is therefore desirable to maximise the interval between the testing occasions in order to minimise the possibility of transfer effects. On the other hand, the longer the time interval is between the two tests, the greater the likelihood that other factors have influenced the organisation's culture (Ghiselli, 1964). As indicated by Huysamen (1990), there should be an interval of at least several days between the two test sessions, but it should not exceed several weeks.

Internal consistency reliability is a measure of the accuracy or consistency with which a set of questionnaire items measures one particular scale. One method of estimating internal consistency reliability is the split-half method, which is derived from correlating the odd and even numbered items in a scale. Other methods are Cronbach's coefficient alpha, which can be represented as the mean coefficient of all the possible split-half pairings of the items of the scale, and the Kuder Richardson formula, which is basically a similar procedure (Beech & Harding, 1990; Finchilescu, 2002).

Internal consistency reliability coefficients pose interesting issues for those developing questionnaires. If the coefficient is too low, it suggests that the scale has

mixed or even ambiguous items, whereas too high a coefficient implies a narrow factor with items that repeat essentially the same idea (Cohen et al., 1988).

An estimate of split-half reliability is obtained by correlating two pairs of scores obtained from equivalent halves of a single test administered once (Cohen et al., 1988). The computation of a coefficient of split-half reliability generally entails three steps (Beech & Harding, 1990):

- Step 1: Divide the test into two equivalent halves.
- Step 2: Compute a Pearson r between the scores on the two halves of the test.
- Step 3: Adjust the half-test reliability using the Spearman-Brown formula.

According to Anastasi (1990), there is more than one way to split a test. Simply dividing the test in half is not recommended, since this procedure would probably spuriously raise or lower the reliability coefficient because of factors such as differential fatigue for the first versus the second part of the test, differential amounts of test anxiety operative, and differences in item difficulty as a function of placement in the test. One acceptable way to split a test is to randomly assign items to one half of it. A second acceptable way is to assign odd-numbered items to one half of the test and even-numbered items to the other, yielding an estimate that is also referred to as "odd-even reliability" (Cohen et al., 1988). A third way is to divide the test by content so that each half of the test contains items equivalent with respect to content and difficulty. Step 2 in the procedure entails the computation of a Pearson r, while step 3 requires the use of the Spearman-Brown formula.

The Spearman-Brown formula is used to estimate internal consistency reliability from a correlation of two halves of a test. However, according to Cohen et al. (1988), internal consistency estimates of reliability, such as that obtained by use of the Spearman-Brown formula, are inappropriate for measuring the reliability of heterogeneous tests. The internal consistency of such tests will tend to appear lower by assessment with other measures.

In addition to the Spearman-Brown formula, other methods in wide use to estimate internal consistency reliability include formulas developed by Kuder and Richardson (1937) and Cronbach (1951).

Inter-item consistency is a term that refers to the degree of correlation between all of the items on a scale; it is an internal reliability measure based on response consistency to individual test items (Cohen et al., 1988). An index of inter-item consistency is useful in assessing the homogeneity of a test (Anastasi, 1990). Tests are said to be homogeneous if they contain items that measure a single trait. The concept of test homogeneity is the converse of test heterogeneity, a term that refers to the degree to which a test measures different factors. In other words, a heterogeneous test is composed of items that measure more than one trait (Anastasi, 1990). The more heterogeneous the content area sampled, then the lower the inter-item consistency will be (Cohen et al., 1988).

Instead of splitting the test into two halves, the Kuder Richardson formula 20 or "KR-20" splits the test into as many parts as there are test items. Each item is then treated as a parallel form of every other item.

In the instance where test items are highly homogeneous, KR-20 and split-half reliability estimates will be similar. However, KR-20 is the statistic of choice for determining the inter-item consistency of dichotomous items. If test items are more heterogeneous, KR-20 will yield lower reliability estimates than the split-half method (Cohen, et al., 1988). A variant of the KR-20 formula is the coefficient alpha, sometimes referred to as coefficient á-20 (Anastasi, 1990). Coefficient alpha is appropriately used in tests containing items that can each be scored along a range of values.

3.7 CONCLUSION

This chapter introduced various measurement constructs proposed by different researchers as a measurement of organisational culture and dealt with the development of the DOCS with reference to 18 years of research on organisational culture and effectiveness. This research showed a close relationship between the

culture of organisations and their patterns of performance, and resulted in the development of the Denison Organisational Culture and Effectiveness Model, which underlies the DOCS. The model is centred on four basic cultural factors of organisations. The rationale for and applications of the Denison Survey were discussed. As the Denison Model is more than just a survey – it's a tool which can assist organisational entities to inter alia attain a baseline assessment of cultural strengths and weeknesses as well as an understanding of current culture relative to high-performing organisations. Involvement, consistency, adaptability and mission were described in the conext of being the four organisational culture traits, each with three subtraits of the model were explained.

The validity and reliability of the DOCS was discussed with reference to the collection of data used to do validity testing in the development process of the DOCS. Over 100 organisations participated, drawing from previous clients and customers associated with either Orion/Aviat or the University of Michigan. The statistical analysis referred to the process used to establish the reliability of the items in all the indexes comprising the model. Reference was made to the conclusion that all of the 12 indexes have acceptable reliability. Brief mention was made regarding the predictive validity studies that have been concluded on the DOCS, providing evidence that organisational culture traits have an impact on various aspects of organisational performance. Finally reliability and the different types of reliability were discussed as background to the research methodology followed in this research.

The next part of this research involves the empirical study conducted to determine the reliability of the DOCS for the use in a financial institution in South Africa.

CHAPTER 4: EMPIRICAL STUDY AND RESEARCH RESULTS

4.1 INTRODUCTION

The establishment of normative data for South African samples is a necessary stage in standardising the local use of the DOCS. However, it is firstly necessary to establish how reliable the survey is in its use in South Africa. This is therefore a replication study to investigate the reliability of the DOCS using a South African example. The major purpose of this research would thus be to assess the reliability of the DOCS in terms of the computation of appropriate reliability coefficients.

4.2 AIM OF THE EMPIRICAL STUDY

The empirical aim of this research is to ascertain the reliability of the DOCS for use in a South African-based financial institution.

4.3 THE POPULATION AND SAMPLE

The population as well as the sampling frame (Mouton, 1996) consisted of all the full time employees employed by the financial institution (p=5 200). Since all the employees received the survey electronically with a covering letter from the chief executive, motivating them to participate in the study, the sampling method can be described as random (Mouton, 1996). Every employee was afforded the opportunity to complete the survey. A 52,6 percent response rate was achieved because 2 735 people completed the survey. The sample thus consisted of 2 735 employees of the organisation (n=2 735).

4.4 THE MEASURING INSTRUMENT

The Denison Organisational Culture Survey (DOCS) as described in Chapter 3 was used as the measuring instrument.

4.5   DATA COLLECTION

Survey questionnaires were sent electronically (via the organisation's electronic communication system) to every employee who was requested to participate in the survey.   Since the questionnaires were completed on-line, they were collated electronically.

4.6   DATA ANALYSIS

The questionnaires were scored, analysed and interpreted electronically using Snap® Software. No human intervention was used in processing the data. Standard statistical procedures were used to provide data on the descriptive statistics of the sample, the preliminary factor analysis and the reliability of the DOCS. Responses to negative statements were reversed during collation and interpretation of the data.

An exploratory factor analysis was done to explore the dimensionality of the scale items of the DOCS (construct validity).

Internal consistency (reliability) was determined through the split-half reliability method as well as Cronbach's alpha. Using the split-half technique, the survey was split in two to render two half-size versions. This was done by dividing the questions into even and odd numbers into two parts to obtain a pseudo-parallel form in which there was no systematic bias in the way in which items from the two forms were distributed with respect to the specification (although there are not necessarily parallel items within each cell of the survey specification). The two forms from the odd and even items of the questionnaire – within each of the subtraits - were taken respectively, because this gave a random spread for the actual content of the items. For each individual, two scores were thus obtained, one for each half of the test, and these were correlated with each other, using the Pearson product-moment correlation coefficient (Rust & Golombok, 1989). The resultant correlation itself does not represent reliability, since it is the reliability of half of the survey instrument. This was of no immediate use because the researcher had to deal with the whole instrument.

The reliability of the whole instrument was obtained by applying the Spearman-Brown formula to this correlation:

$$r_{test} = (2 \times r_{half}) / (1 + r_{half}),$$

where r_{test} is the reliability of the test, and r_{half} is the correlation obtained between the two halves of the instrument. Following this analysis, Cronbach's alpha was used to establish the item-total correlations of the items and resultant internal consistency, both for the total scale and the subscales.

The following structure of the DOCS as reported by Fisher (1997) was used to allocate survey items in the calculation of the statistics:

TABLE 4.1: Structure of the DOCS showing allocation of survey items

Trait	Subtrait	Questions
Involvement	Empowerment	1 to 5
	Team orientation	6 to 10
	Capability development	11 to 15
Consistency	Core values	16 to 20
	Agreement	21 to 25
	Coordination and integration	26 to 30
Adaptability	Creating change	31 to 35
	Customer focus	36 to 39
	Organisational learning	40 to 44
Mission	Strategic direction and intent	45 to 49
	Objectives and goals	50 to 54
	Vision	55 to 59

4.7   RESEARCH RESULTS

4.7.1 Sample Statistics

Kerlinger (1986) states that whenever a mean or other statistic is calculated from a sample, a population value is being estimated. The question that must be asked is: How much error is likely to be in statistics calculated from the sample? From the literature it is known that the smaller the sample, the larger the error, and the larger the sample, the smaller the error.

Nowack (1990) discusses the minimum number of respondents needed to be confident that the sample size will reflect the sentiments of the entire target population. The minimum number depends on several statistical factors:

- The expected response rate of the questionnaire (a 50 percent response rate is generally considered good).

- The precision of the population estimate (for example, within plus or minus 5 percent).

- The confidence level (for example, a 95 percent confidence level means that 95 out of 100 times a sample will provide the desired precision level).

Nowack (1990) states that the minimum sample required can be calculated using the formula: Minimum sample size = (population size)(0,96)/(0,0025(population size)+0,96). To make valid inferences from a population of 5200 employees, the researcher would need to have at least 358 questionnaires returned to have a 95 percent confidence level that the results were within plus or minus 0,05 accuracy for the entire target population. The sample size of 2735 was thus in excess of the required 358.

Kerlinger (1986) mentioned that the law of large numbers says that as you increase the sample of sizes, you also decrease the probability that the observed value of an event, A, will deviate from the "true" value of A by no more than a fixed amount, *k*. Provided the members of the samples are drawn independently, the larger the sample, the closer the "true" value of the population is approached.

As suggested by Kerlinger (1986) the sample size used in this study should have an extremely low error in calculations. The descriptive statistics for the sample are presented in table 4.5 and appendices 1 to 6. The sample represented employees from all levels in the organisation, with a demographic spread (race, gender, age and rank) that was regarded as representative of the demographics of the organisation.

The frequencies of responses were recorded as the following:

- <u>Race</u>: White - 65% of sample (1777)

  Black - 25% of sample (684)

  Asian - 10% of sample (274)

- <u>Gender</u>: Female   -   68% of sample   (1860)
             Male   32% of sample   (875)

- <u>Age</u>:   17-25   -   15% of sample   (410)
             26-35   -   20% of sample   (575)
             36-45   -   30% of sample   (820)
             46-55   -   25% of sample   (684)
             56 and above-   10% of sample   (274)

- <u>Rank</u>:   Jobgrade 1-8 (Junior)   50% of sample   (1367)
               Jobgrade 9-11 (Middle)   35% of sample   (957)
               Jobgrade 12-15 (Senior) 10% of sample   (273)
               Jobgrade General Managers 5% of sample   (137)

All the frequencies reported above correlate well with the general demographics of the entire organisation in all the categories.

4.7.2 Descriptive statistics of the DOCS

Appendixes 1 to 6 detail the descriptive statistics for the DOCS in this study. Appendix 1 indicates the n statistics, range statistics, minimum statistics, maximum and sum statistics with the negative statements unchanged. Appendix 2 details the mean statistic, standard error, standard devition and variance statistic, while Appendix 3 indicates the skewness and kurtosis with negative questions unchanged. Appendix 4 highlights the n statistics, range, minimum, maximum and sum descriptive statistics with the negative statements inverted; with Appendix 5 detailing the mean statistic and standard error, standard deviation and variance statistic for negative questions inverted. Appendix 6 details the skewness and kurtosis statistic with standard error for the negative questions inverted.

4.7.2.1   n-Statistic

As demonstrated in Appendices 1, 4 and 6, the n-statistic for the questionnaire range between 2660 for question 46 – "Our strategy leads to other organisations changing the way they compete in the industry"; and 2731 for question 1 – "most employees are highly involved in their work". The lowest n-statistic of 2660 is 2302 above the minimum statistic as described by Nowack (1990), implicating a minimum of 95 percent confidence level that the results were within plus or minus 0,05 accuracy for the entire target population. The n-statistic does not change remarkebly when the negative statements were inverted.

4.7.2.2   Mean, standard error, standard deviation and variance statistic

To study the scientific problem outlined in this research study, and to answer the research questions, it was necessary to study the differences between the phenomena. It was essential to study the differences, as without differences, without variation, there is no technical way to determine the relations among variables (Kerlinger, 1986). Studying sets of numbers as they are is unwieldy. It was thus necessary to reduce the sets in two ways, by calculating measures of central tendency (mean), and by calculating measures of variability (variance).

The mean expresses the general level, the center of gravity, of a set of measures (Kerlinger,1986), it is in general, a good representative of the level of a group's characteristics. Appendix 2 indicates the mean of between 2460 and 3930 with a standard error ranging between 0,010 and 0,020. Whereas this sample was 'drawn' from the population at random, the means of the sample will tend to be normally distributed – meaning the known properties of the normal curve can be used to interpret the obtained research data – knowing that 96 percent of the means will lie between 0,027 and 1,028 standard deviations (standard errors) above and below the mean. The variance range between 0,488 and 1,209, indicate that differences in responses will not differ more than the said variances.

4.7.3 Exploratory factor analysis

Although this was not part of the main aim, it was decided to construct an exploratory factor analysis of the instrument as a first step towards establishing construct validity. The high internal consistency of the instrument seems to suggest that there may be one underlying factor. This was investigated using a principal components analysis.

The KMO and Bartlett's test of sphericity were used to establish whether a factor pattern could indeed be established in this data set. From table 4.2 it is evident the value was well above the conventional cut-off of 0,700 and it was decided to proceed with the factor analysis.

TABLE 4.2: KMO and Bartlett's test

Kaiser-Meyer-Olkin measure of sampling adequacy		0,975
Bartlett's test of sphericity	Approx chi-square	55 269,545
	Df	1 711
	Sig	0,000

A principal component analysis was performed to establish the number of factors that could be extracted. The eigenvalues and percentage variance explained are reported on in Table 4.3 below.

TABLE 4.3: Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18,992	32,190	32,190	18,992	32,190	32,190
2	2,393	4,057	36,247	2,393	4,057	36,247
3	2,084	3,533	39,779	2,084	3,533	39,779
4	1,546	2,620	42,399	1,546	2,620	42,399
5	1,328	2,251	44,650	1,328	2,251	44,650
6	1,182	2,004	46,654	1,182	2,004	46,654
7	1,138	1,929	48,583	1,138	1,929	48,583
8	1,090	1,848	50,431	1,090	1,848	50,431
9	1,077	1,825	52,256	1,077	1,825	52,256
10	1,024	1,736	53,992	1,024	1,736	53,992
11	0,944	1,600	55,592			
12	0,906	1,536	57,127			
13	0,886	1,502	58,629			

14	0,857	1,453	60,083			
15	0,851	1,442	61,525			
16	0,810	1,374	62,898			
17	0,764	1,295	64,193			
18	0,746	1,264	65,457			
19	0,736	1,247	66,704			
20	0,719	1,219	67,923			
21	0,699	1,185	69,108			
22	0,685	1,160	70,269			
23	0,665	1,128	71,397			
24	0,652	1,105	72,501			
25	0.642	1,087	73,588			
26	0,629	1,067	74,655			
27	0,525	1,060	75,715			
28	0,603	1,022	76,737			
29	0,585	0,992	77,729			
30	0,577	0,978	78,708			
31	0,572	0,970	79,678			
32	0,556	0,942	80,620			
33	0,540	0,915	81,534			
34	0,529	0,896	82,430			
35	0,527	0,894	83,324			
36	0,521	0,883	84,207			
37	0,503	0,852	85,058			
38	0,497	0,843	85,901			
39	0,492	0,834	86,735			
40	0,487	0,825	87,560			
41	0,475	0,806	88,365			
42	0,463	0,784	89,150			
43	0,452	0,766	89,915			
44	0,446	0,755	90,670			
45	0,438	0,742	91,413			
46	0,425	0,721	92,134			
47	0,422	0,715	92,848			
48	0,410	0,695	93,543			
49	0,400	0,678	94,221			
50	0,396	0,671	94,893			
51	0,392	0,664	95,556			
52	0,381	0,647	96,203			
53	0,367	0,621	96,824			
54	0,358	0,607	97,431			
55	0,337	0,571	98,002			
56	0,328	0,555	98,557			
57	0,317	0,536	99,094			
58	0,307	0,521	99,614			
59	0,227	0,386	100,000			

Extraction Method: Principal Component Analysis

From table 4.3 above, it is evident that there were 10 factors with an eigenvalue larger than 1, and if one was to use the latent root criterion it would imply that 10 factors could be extracted. If one uses the scree test criterion (Hair, Anderson, Tatham & Black, 1998), the scree plot in figure 4.1 below would suggest that between 1 and 3 factors may suffice.

Figure 4.1: Scree plot
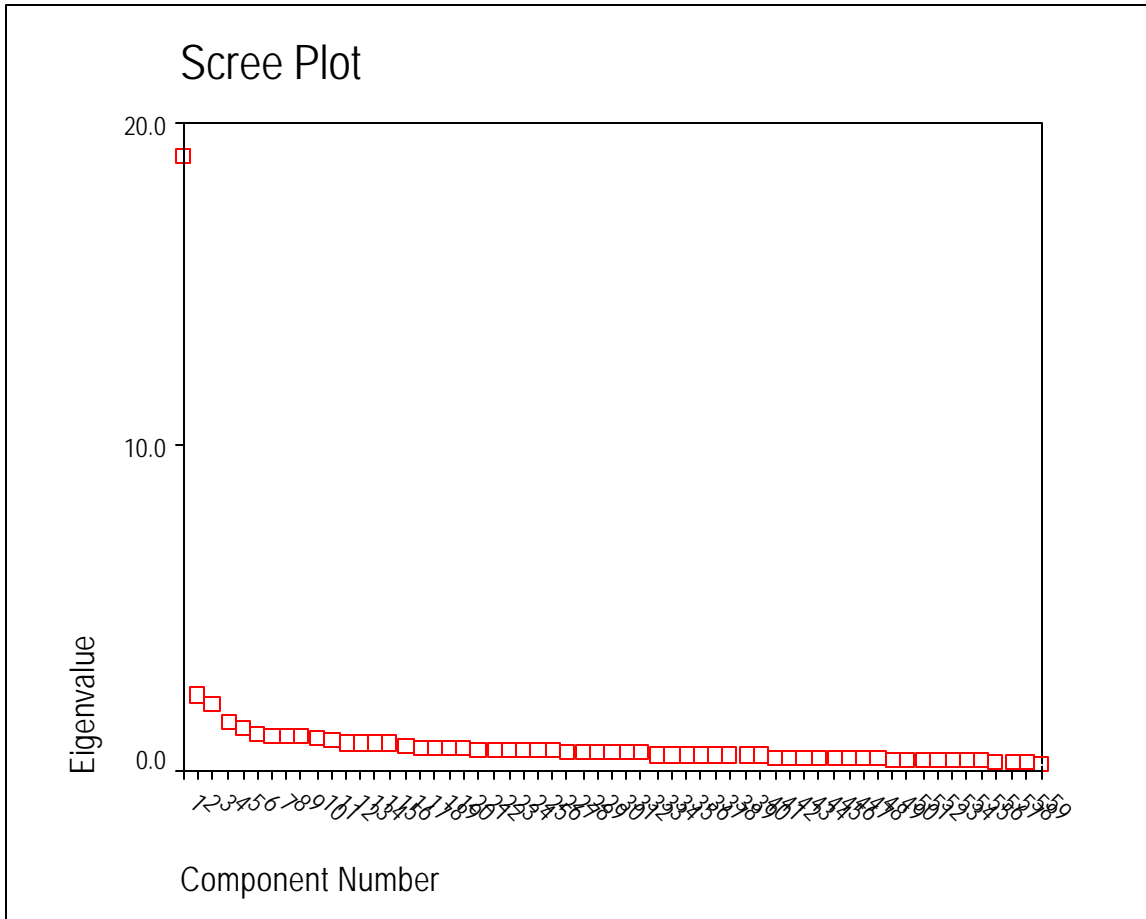
Using the latent root criterion, a 10-factor solution was explored, and factor loadings are reported in table 4.4 below. A principal components analysis with a direct oblimin rotation was used.

Table 4.4: Pattern matrix

	Component									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
q48 There is a clear strategy for the future.	0,851	-0,045	-0,029	0,0003	0,046	0,016	0,058	-0,005	-0,009	-0,008
q49 Our strategic direction is unclear to me.	0,773	-0,114	-0,071	0,106	0,028	0,015	0,044	-0,010	-0,107	-0,091
q47 There is a clear mission that gives meanin...	0,708	0,00002	0,020	0,042	0,065	0,115	0,043	0,054	-0,037	-0,003
q55 We have a shared vision of what the organi...	0,701	0,087	0,039	0,022	0,023	-0,023	-0,018	-0,024	0,014	0,072
q45 There is a long-term purpose and direction.	0,675	-0,010	0,033	-0,010	0,071	0,077	0057	0,047	-0,009	0,017
q56 Leaders have a long-term viewpoint.	0,618	-0,057	0,029	-0,017	0,011	0,113	-0,094	0,011	0,055	0,053
q50 There is widespread agreement about goals.	0,593	0,067	0,030	0,004	0,080	-0,008	-0,038	-0,015	0,018	0,110
q58 Our vision creates excitement and motivati...	0,525	0,161	-0,018	0,023	0,059	-0,076	-0,075	0,149	0,048	0,130
q54 People understand what needs to be done fo...	0,480	0,101	0,045	-0,028	0,019	0,084	0,010	0,130	-0,162	0,069
q51 Leaders set goals that are ambitious, but ...	0,478	0,010	0,093	0,118	-0,044	-0,086	-0,258	0,105	0,099	0,013
q46 Our strategy leads other organizations to ...	0,383	0,131	0,214	-0,043	0,034	0,096	0,148	-0,006	0,159	0,206
q59 We are able to meet short-term demands wit...	0,377	0,194	,0,068	0,231	-0,023	0,067	-0,068	0,077	0,142	0,087
q53 We continuously track our progress against...	0,314	-0,265	0,091	-0,058	0,000	0,195	-0,005	0,288	-0,140	-0,004
q52 The leadership has "gone on record" about ...	0,422	-0,424	0,119	0,009	-0,121	0,157	-0,206	0,110	-0,003	-0,015
q44 We make certain that the "right hand knows...	0,151	0,341	0,099	0,063	0,131	0,012	-0,014	0,132	-0,136	0,182
q38 All members have a deep understanding of c...	0,153	0,337	0,308	-0,073	0,101	0,008	0,129	0,010	-0,309	0,102
q37 Customer input directly influences our dec...	-0,062	-0,071	0,890	-0,045	0,002	0,016	-0,033	-0,011	0,046	-0,051
q36 Customer comments and recommendations ofte...	-0,079	-0,068	0,873	-0,050	0,011	-0,001	-0,030	-0,017	0,037	0,029
q39 The interests of the customer often get ig...	0,095	0,113	0,540	0,207	-0,029	-0,017	0,032	-0,054	-0,340	-0,030
q57 Short-term thinking often compromises our ...	0,076	-0,059	-0,012	0,680	-0,015	0,024	0,084	-0,024	0,023	0,004
q24 We often have trouble reaching agreement o...	0,004	0,127	-0,037	0,580	0,111	0,059	-0,197	0,017	-0,137	-0,016
q34 Attempts to create change usually meet wit...	-0,012	-0,094	0,051	0,420	0,122	-0,146	0,007	0,040	-0,243	0,226
q42 Lots of things "fall between the cracks".	0,102	0,092	0,140	0,350	0,136	0,014	-0,005	-0,002	-0,323	0,125
q8 Teamwork is used to get work done, rather ...	0,031	0,017	0,045	0,133	0,712	0,039	-0,030	0,076	0,106	-0,004
q9 Teams are our primary building blocks.	0,045	-0,088	0,062	0,095	0,700	0,059	0,148	0,110	0,231	-0,015
q7 People work like they are part of a team.	0,005	0,009	0,009	0,111	0,689	0,048	-0,072	0,012	-0,062	0,087
q1 Most employees are highly involved in thei...	0,118	-0,016	0,085	-0,158	0,505	0,056	-0,145	-0,120	-0,359	-0,018
q4 Everyone believes that he or she can have ...	0,078	0,185	-0,051	-0,090	0,476	-0,040	-0,084	0,131	-0,124	0,079
q10 Work is organized so that each person can ...	0,171	0,034	0,001	-0,141	0,332	0,050	-0,075	0,232	-0,143	0,072
q21 When disagreements occur, we work hard to ...	-0,009	0,167	0,042	0,180	0,240	0,227	-0,189	0,210	0,154	0,043

q20 There is an ethical code that guides our b...	0,053	-0,125	0,002	0,012	-0,002	0,700	0,052	0,083	-0,006	0,051
q19 Ignoring core values will get you in trouble.	0,021	-0,073	0,047	0,009	0,189	0,638	0,261	-0,027	0,008	0,008
q25 There is a clear agreement about the right...	0,106	0,222	-0,017	0,114	-0,036	0,476	-0,192	0,114	-0,065	0,055
q18 There is a clear and consistent set of val...	0,179	-0,050	0,055	0,028	-0,009	0,467	-0,179	0,123	-0,085	0,082
q26 Our approach to doing business is very con...	0,051	0,246	0,022	-0,147	-0,088	0,465	-0,239	0,019	-0,090	0,049
q17 There is a characteristic management style...	0,006	-0,061	0,085	0,088	0,105	0,401	-0,339	-0,019	0,067	0,067
q22 There is a "strong" culture.	0,133	0,113	0,072	0,133	0,163	0,331	-0,090	-0,075	0,085	0,159
q16 The leaders and managers "practice what th...	0,106	-0,103	0,073	0,181	0,196	0,127	-0,446	0,120	0,020	0,028
q2 Decisions are usually made at the level wh…	0,080	0,104	0,123	-0,038	0,194	0,039	-0,440	0,029	-0,166	0,110
q3 Information is widely shared so that every...	0,114	0,055	0,030	-0,110	0,151	0,082	-0,341	0,173	-0,177	0,114
q23 It is easy to reach consensus, even on dif...	0,003	0,264	0,035	0,258	0,146	0,083	-0,335	0,082	0,110	0,180
q5 Business planning is ongoing and involves ...	0,175	-0,052	0,042	-0,061	0,194	-0,017	-0,335	0,227	0,021	0,106
q13 There is continuous investment in the skil...	0,020	-0,102	-0,029	-0,019	0,024	-0,016	-0,045	0,716	-0,100	0,081
q14 The capabilities of people are viewed as a...	0,068	-0,117	-0,028	-0,029	0,154	0,051	-0,083	0,590	-0,012	0,053
q43 Learning is an important objective of our ...	0,061	0,240	0,051	0,022	0,036	0,230	0,340	0,533	0,003	-0,057
q41 Innovation and risk taking are encouraged ...	0,088	0,040	0,154	0,151	0,020	-0,072	-0,022	0,488	0,073	0,053
q12 The "bench strength" (capability of people...	0,029	0,092	-0,039	-0,036	0,176	0,100	-0,075	0,487	-0,141	0,042
q11 Authority is delegated so that people can ...	-0,004	0,026	0,039	0,066	0,125	0,007	-0,383	0,403	0,021	-0,014
q33 New and improved ways to do work are conti...	0,100	0,003	0,179	-0,007	0,009	0,046	0,059	0,354	0,026	0,248
q40 We view failure as an opportunity for lear...	0,096	0,222	0,294	0,137	0,027	0,095	0,102	0,313	0,034	-0,018
q15 Problems often arise because we do not hav...	-0,013	-0,025	-0,042	0,213	-0,096	0,064	0,006	0,181	-0,597	0,066
q28 It is easy to co-ordinate projects across ...	-0,024	0,144	-0,028	-0,002	-0,007	0,044	-0,039	0,002	-0,020	0,753
q29 Working with someone from another part of ...	-0,097	-0,169	0,012	0,162	-0,024	-0,045	0,000	0,008	-0,181	0,729
q27 People from different parts of the organiz...	0,123	0,122	-0,053	-0,019	0,065	0,115	-0,002	-0,068	-0,008	0,649
q35 Different parts of the organization often ...	0,016	-0,141	0,101	-0,037	0,025	0,092	0,084	0,082	0,111	0,594
q30 There is good alignment of goals across le...	0,222	-0,003	-0,025	0,019	0,058	0,093	-0,060	0,038	-0,035	0,492
q31 The way things are done is very flexible a...	0,057	0,192	0,143	-0,006	0,010	-0,167	-0,123	0,123	0,151	0,442
q32 We respond well to competitors and other c...	0,183	0,175	0,284	-0,006	0,027	-0,050	0,118	0,087	0,088	0,303
q6 Co-operation across different parts of the...	0,137	-0,193	0,072	-0,075	0,271	0,030	-0,099	0,104	-0,040	0,303

Extraction method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
A Rotation converged in 64 iterations

Factor 1 contained items 45 to 59 with the exception of 57, which was shown to be problematic in the reliability analyses, as well as item 52, which showed almost equal loadings on factors 1 and 2. It would therefore seem that the fifth subscale in the instrument, namely mission, appeared to be a fairly clear factor in this sample.

Factor 2 consisted of isolated items, namely items 38, 44, and 52 (which also showed a strong loading on factor 1). These items are: "All members have a deep understanding of customer wants and needs" (item 38) and "We make certain that the 'right hand knows what the left hand is doing'". Item 52 is "The leadership has 'gone on record' about the objectives we are trying to achieve". The first two items belong to the greater "adaptability" scale, while the last one was part of the "vision" subscale. Factor 2 therefore does not represent a clear theoretical factor.

Factor 3 consisted of questions 36, 37, 38 (although the latter also showed a strong loading on factor 9) and 39. These questions constituted the "customer focus" subscale of the questionnaire and seem to form an identifiable factor.

On factor 4, items 24, 34 and 57 loaded fairly strongly. Item 57 was already shown to be problematic in the questionnaire. Even so, all three of these items refer to negative outcomes and resistance. They seem to group together in a way that was not originally theoretically intended, yet make some theoretical sense.

Factor 5 consisted of items 4, and 7 to10. These all form part of the "involvement" subscale of the questionnaire, while questions 6 to 10 forms the "team orientation" subscale of the "involvement" scale. This factor seems to refer to cooperation in the organisation and to the majority of the original team orientation questions with one involvement question added.

Items 17 to 20 as well as item 22 constituted factor 6. These are all part of the "consistency" subscale, while items 16 to 20 form the "core values" subscale of the "consistency" scale. This factor could be said to refer to core values and culture, and is made up of the bulk of the original core values factor, together with one item from the same larger theoretical grouping.

The items that loaded on factor 7 were 2, 3, 5, 16 and 23. The first three are part of the "empowerment" subscale of the "involvement" scale, while the last two form part of the "consistency" scale. When the items are seen as a whole, they seem to relate to a degree of involvement of people in processes and working together to reach meaningful decisions:

2:      Decisions are usually made at the level where the best information is available.

3:      Information is widely shared so that everyone can obtain the information he or she needs when it is needed.

5:      Business planning is ongoing and to some degree involves everyone in the process.

16:     The leaders and managers "practise what they preach".

23:     It is easy to reach consensus, even on difficult issues.

Factor 8 contains questions 11 to14 as well as item 33. The first 4 items represent 4 of the 5 "capability development" questions, while item 33 refers to new and improved ways of doing things. This factor may be seen as referring to improvement and development – both of people and processes. The bulk of the original factor was therefore retained, and additional items added which makes theoretical sense.

Factor 9 consists of items 1 and 15 – a combination that does not seem to make theoretical sense. Quite a few items loaded on factor 10, namely 6, 27 to 32 and 35. Questions 26 to 30 in the questionnaire refer to coordination and integration – hence the bulk of items on this factor come from this subscale. Similarly, question 6 refers to cooperation across different parts of the organisation, as does question 35. This factor therefore quite clearly represents coordination and cooperation in the company. The original theoretical factor was therefore retained, with some additional questions, which makes theoretical sense.

The factor analysis was not performed as part of the main aim of this study, but rather in order to begin to explore the underlying structure of the questionnaire as applied in a South African financial institution.

Fewer factors would probably be sufficient to explain the variance in the dataset, as suggested in the scree plot, but using the latent root criterion, a number of the factors make theoretical and intuitive sense. The factor structure of the DOCS needs to be explored in further studies.

4.7.4 Reliability

4.7.4.1 Split-half reliability

In this section, the results of the empirical study to determine the split-half reliability of the DOCS will be presented. The results will be reported per table for negative statements left as they are and instances for which negative statements were inverted. The results will be interpreted in terms of exactly what is being measured and discussed according to the formulated hypothesis, and finally linked to the theory as set out in chapters 2 and 3.

TABLE 4.5: Correlations

		Sum of un-even Denison items	Sum of even Denison items
Sum of un-even Denison items	**Pearson correlation**	1	0,943**
	Sig (2-tailed)		0,000
	N	2 735	2 735
Sum of even Denison items	**Pearson correlation**	0,943**	1
	Sig (2-tailed)	0,000	
	N	2 735	2 735

**Correlation is significant at the 0,010 level (2-tailed).

As indicated in Table 4.5 above, the internal consistency reliability of the whole instrument was calculated as 0,970. This was obtained by applying the Spearman-Brown formula to the correlation:

$$r_{test} = (2 \times r_{half}) / (1 + r_{half}),$$

where r_{test} is the reliability of the test, and r_{half} is the correlation obtained between the two halves of the instrument.

An internal consistency of 0,970 can be regarded as a highly acceptable figure in terms of a generally acceptable standard. The reliability of the DOCS reflects statistically significant internal consistency. Kline (1986) claims that the reliability of a test or survey should at least be >0,700. According to Finchilescu (2002), higher reliability coefficients are needed for ability and achievement tests than for personality or attitude scales, and he concludes that a reliability coefficient of 0,650 is sufficient for comparing group scores, while 0,850 is needed for comparing individual scores. It can therefore be concluded that the DOCS for use in a South African financial institution, with an internal consistency reliability factor of 0,970 is significant. However, as mentioned by Kline (1986), there can be no doubt that coefficient alpha is the most efficient measure of reliability, and it should therefore always be computed when the instrument is applied in different populations.

4.7.4.2 Cronbach's alpha

A further measure of internal consistency, namely Cronbach's alpha, was computed for the total scale as well as the subscales, and further subscales within these. The results are reported in table 4.6, which represents the reliability analysis of the total scale (alpha).

TABLE 4.6: Reliability analysis scale (alpha)

	Scale	Scale	Corrected	
	mean	variance	item-	Alpha
	if Item	if Item	total	if Item
	deleted	deleted	correlation	deleted
Q1	192,654	866,066	0,478	0,961
Q2	193,122	855,335	0,592	0,060
Q3	192,927	855,794	0,590	0,960
Q4	193,075	860,537	0,533	0,961
Q5	193,017	857,436	0,593	0,960
Q6	192,915	859,188	0,583	0,960
Q7	193,043	852,531	0,627	0,960
Q8	192,824	854,953	0,613	0,960
Q9	192,652	864,245	0,510	0,961
Q10	192,855	858,644	0,603	0,960
Q11	192,925	859,308	0,538	0,961
Q12	192,929	859,164	0,599	0,960
Q13	193,009	857,726	0,552	0,961
Q14	192,894	858,623	0,594	0,960
Q15	193,383	871,244	0,300	0,962
Q16	193,268	853,885	0,623	0,960
Q17	192,974	867,083	0,492	0,961

Q18	192,679	859,016	0,640	0,960
Q19	192,429	873,903	0,365	0,961
Q20	192,348	872,877	0,455	0,961
Q21	192,878	859,618	0,602	0,960
Q22	192,954	860,255	0,567	0,960
Q23	193,310	859,774	0,594	0,960
Q24	193,293	868,815	0,417	0,961
Q25	192,792	859,802	0,601	0,960
Q26	192,832	870,555	0,407	0,961
Q27	193,299	858,376	0,582	0,960
Q28	193,536	861,854	0,541	0,961
Q29	193,561	864,876	0,431	0,961
Q30	193,090	858,453	0,639	0,960
Q31	193,505	863,074	0,472	0,961
Q32	193,040	861,205	0,523	0,961
Q33	192,847	860,238	0,581	0,960
Q34	193,601	871,250	0,364	0,961
Q35	193,068	868,513	0,474	0,961
Q36	192,936	871,350	0,396	0,961
Q37	192,916	872,375	0,371	0,961
Q38	193,158	859,773	0,510	0,961
Q39	193,030	863,941	0,447	0,961
Q40	192,735	864,006	0,556	0,961
Q41	193,168	859,988	0,544	0,961
Q42	193,528	861,554	0,552	0,961
Q43	192,419	869,792	0,472	0,961
Q44	193,295	854,545	0,617	0,960
Q45	192,657	859,337	0,653	0,960
Q46	193,006	864,153	0,544	0,961
Q47	192,606	860,191	0,684	0,960
Q48	192,645	858,894	0,651	0,960
Q49	192,742	861,428	0,537	0,961
Q50	192,874	860,617	0,620	0,960
Q51	192,950	861,828	0,550	0,961
Q52	192,685	872,599	0,441	0,961
Q53	192,590	867,186	0,539	0,961
Q54	192,759	858,717	0,42	0,960
Q55	192,955	857,072	0,639	0,960
Q56	192,666	861,802	0,615	0,960
Q57	193,663	880,767	0,212	0,962
Q58	193,102	856,248	0,653	0,960
Q59	193,023	863,621	0,584	0,960
Reliability coefficients:				
N of cases = 2 177				
N of items = 59				
Alpha = 0,961				

As indicated above, the alpha coefficient for the total scale is 0,961, which confirms the high reliability value obtained in the split-half method. Similarly, item-total correlations are above acceptable levels, with the possible exception of item 57. Cronbach alpha statistics were also calculated for the subscales of the questionnaire, namely "involvement", "consistency", "adaptability" and "mission".

The results for the "involvement" subscale with a Cronbach alpha of 0,892 are reported in table 4.7 and for the "consistency" subscale with a Cronbach alpha of 0,874 in table 4.8.

TABLE 4.7: Cronbach alpha for the "involvement" subscale of the DOCS

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Alpha if item deleted
Q1	46,863	76,519	0,510	0,887
Q2	47,327	73,996	0,585	0,884
Q3	47,131	73,856	0,602	0,884
Q4	47,265	74,796	0,575	0,885
Q5	47,212	74,599	0,591	0,884
Q6	47,121	75,303	0,569	0,885
Q7	47,233	72,450	0,666	0,881
Q8	47,018	73,488	0,638	0,882
Q9	46,853	76,670	0,511	0,887
Q10	47,059	74,801	0,613	0,883
Q11	47,123	74,688	0,561	0,885
Q12	47,128	74,900	0,617	0,883
Q13	47,206	74,565	0,558	0,886
Q14	47,099	74,811	0,606	0,884
Q15	47,582	78,798	0,275	0,898
Reliability coefficients: N of cases = 2 608; N of items = 15; Alpha = 0,892				

Table 4.7 shows that the **"involvement"** subscale of the total scale shows a high Cronbach's alpha (0,890) and all item-total correlations are above acceptable limits. The lowest item-total correlation was obtained with regard to item 15, "Problems arise because we do not have the skills necessary to do the job". A possible interpretation for the low item-total correlation could be related to what this item measures – employees' opinion about their skill levels, rather how people relate to the culture of involvement.

TABLE 4.8: Cronbach alpha for the "consistency" subscale of the DOCS

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Alpha if item deleted
Q16	46,259	55,170	0,597	0,8625
Q17	45,955	58,110	0,117	0,8668
Q18	45,670	56,383	0,629	0,8614
Q19	45,411	60,339	0,341	0,8739
Q20	45,343	59,806	0,460	0,8692
Q21	45,867	56,572	0,587	0,8632

Q22	45,947	56,573	0,556	0,8646
Q23	46,287	56,296	0,604	0,8624
Q24	46,267	58,568	0,422	0,8710
Q25	45,769	56,356	0,605	0,8624
Q26	45,813	59,001	0,419	0,8709
Q27	46,271	56,220	0,568	0,8641
Q28	46,503	57,010	0,531	0,8659
Q29	46,543	57,692	0,419	0,8720
Q30	46,069	56,400	0,615	0,8620
Reliability coefficients				
N of cases = 2 533				
N of items = 15				
Alpha = 0,874				

For the **"consistency"** subscale, reported in Table 4.8, the Cronbach alpha value was also highly acceptable (0,874) and all item-total correlations above acceptable levels. Results for the **"adaptability"** subscale with a Cronbach alpha of 0.855 are reported in Table 4.9. The calculated Cronbach alpha of 0,855 is indicative of a high item-total correlation.

TABLE 4.9: Cronbach alpha for the "adaptability" subscale of the DOCS

	Scale mean if item deleted	Scale variance if item deleted	Corrected item-total correlation	Alpha if item deleted
Q31	45,9064	57,4596	0,499	0,858
Q32	45,4370	56,8194	0,573	0,854
Q33	45,2549	57,3029	0,577	0,864
Q34	46,0020	60,1669	0,353	0,865
Q35	45,4706	59,6303	0,461	0,860
Q36	45,3405	59,1502	0,481	0,859
Q37	45,3185	59,2924	0,456	0,860
Q38	45,5370	56,6266	0,639	0,856
Q39	45,4370	57,2237	0,504	0,858
Q40	45,1437	58,2007	0,666	0,855
Q41	45,5742	57,4984	0,421	0,857
Q42	45,9260	57,8980	0,533	0,856
Q43	44,8219	60,1200	0,450	0,860
Q44	45,6919	55,9843	0,596	0,853
Q45	45,0656	58,5633	0,534	0,857
Reliability coefficients				
N of cases = 2 608				
N of items = 15				
Alpha = 0,855				

Table 4.10 shows that the **"mission"** subscale has a high level of internal consistency (0,898) with items showing strong correlations with the total score. It is clear from the results reported above, that the alpha coefficients of the subscales are also at highly acceptable levels. Again it is evident that item 57 is the only item with

a particularly low item–total correlation. Factor 57, "Short term-thinking often compromises our long-term vision", probably measures short-term thinking versus long-term vision, and does not relate to the core issue of the mission subscale.

TABLE 4.10: Cronbach alpha for the "mission" subscale of the DOCS

	Scale mean if item deleted	Scale variance if item deleted	Corrected item- total correlation	Alpha if item deleted
Q46	44,692	52,922	0,527	0,894
Q47	44,299	51,302	0,731	0,886
Q48	44,345	50,435	0,747	0,885
Q49	44,450	51,001	0,610	0,890
Q50	44,566	51,601	0,645	0,889
Q51	44,634	51,903	0,564	0,893
Q52	44,389	54,266	0,500	0,895
Q53	44,295	53,350	0,553	0,893
Q54	44,453	51,379	0,645	0,889
Q55	44,636	50,329	0,692	0,887
Q56	44,348	51,794	0,654	0,889
Q57	45,353	57,063	0,186	0,907
Q58	44,793	50,952	0,637	0,889
Q59	44,704	52,815	0,570	0,892
Reliability coefficients				
N of cases = 2 479				
N of items = 14				
Alpha = 0,898				

It may be concluded that the DOCS shows sufficient internal consistency to be regarded as reliable for use in a South African financial institution.

Within these subscales (involvement, consistency, adaptability and mission), further smaller scales (identified as subtraits in table 4.1) were identified. The reliability of these subtrait scales was also analysed, and the results are reported for each sub-trait in appendices 7 to 18. The Cronbach alpha reliability analysis as calculated for all the sub-traits within each subscale is summarised in Table 4.11 below. The reliability analysis of the "creating change" subtrait, which relates to the subscale of "adaptability", resulted in the lowest c-alpha of 0,690. The highest c-alpha of 0,840 was obtained for the "strategic direction and intent", which relates to the "mission" subscale.

TABLE 4.11: Summary of reliability analyses as calculated

Trait (Cronbach alpha)	Subtrait	Reliability analysis (Cronbach alpha)
Involvement (0,890)	Empowerment	0,770
	Team orientation	0,770
	Capability development	0,710
Consistency (0,870)	Core values	0,730
	Agreement	0,750
	Coordination and integration	0,730
Adaptability (0,870)	Creating change	0,690
	Customer focus	0,700
	Organisational learning	0,730
Mission (0,890)	Strategic direction and intent	0,840
	Objectives and goals	0,770
	Vision	0,720

The analysis in this study shows that the internal consistency of the subscales ranges from 0,690 for the "creating change" sub-trait, which loads on the "adaptability" subscale, and 0,840 for the "strategic direction and intent" subscale, which loads on the "mission" subscale. These results compare favourably with research conducted in organisations in the USA. The initial studies showed internal consistency scores in the recommended range of 0,620 to 0,900 (Denison & Neale, 1996).

4.8   CONCLUSION

This replication study investigated the reliability of the DOCS in terms of the computation of appropriate reliability coefficients by using a South African sample. It would appear from the study that the DOCS is highly reliable in terms of internal consistency. Both split-half and Cronbach alpha analyses indicated high levels of internal homogeneity amongst the items. With the exception of two items (item 15 and 57), all items showed satisfactory item-total correlations. This was the case for both the total scale and the subscales. Investigation of test-retest reliability over time will add to this evidence. The preliminary factor analysis would seem to suggest that there are identifiable factors underlying the data, most of which correspond to an initially intended theoretical subscale in some way. The exact factor structure requires further investigation.

CHAPTER 5: CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In chapters 1 to 4 the research problem and its setting were discussed, followed by a literature study on organisational culture and the measurement of organisational culture, and finally the empirical study to determine the reliability of the DOCS.

In this chapter, conclusions will be made on the findings of the literature and empirical studies in the context of the aims of the study as proposed in chapter 1. The limitations encountered during this study will be mentioned, and recommendations for further study will be made.

5.2 AIMS REVISITED

The general aim of this study was to investigate the reliability of the DOCS for use in a South African financial institution. Specific aims included two theoretical aims and one empirical aim. The theoretical aims were to provide a framework allowing firstly conceptualising organisational culture, and secondly to investigate the dimensions of organisational culture. The empirical aim was to investigate the reliability of the DOCS for use in a South African financial institution, using South African samples. A preliminary investigation into the construct validity was also done.

Chapter 2 achieves the aim of providing a framework for the conceptualisation of organisational culture and the measurement thereof, for an understanding of organisational culture in the cognitive-behaviouristic paradigm. Personality to the individual is what culture is to the organisation. It is a hidden force that provides meaning and direction. Most literature consulted in this study refers to organisational culture as the organisational personality – that is, a system of shared meaning, the system of beliefs and values that ultimately shape employee behaviour. In the literature there is no shortage of definitions of organisational culture. For the purpose of this study, Denison's reference to organisational culture took preference. In his reference organisation culture is the underlying values, beliefs and principles that serve as a foundation for an organisation's management system as well as the

set of management practices and behaviours that both exemplify and reinforce those basic principles. These principles and practices endure because they have meaning for the members of an organisation.

The central theme of most, if not all definitions used added the most value to the objectives of this study, namely that organisational culture refers to a system of shared meaning, the prevailing background fabric of prescriptions and proscriptions for behaviour, the system of beliefs and values and the technology and task of the organisation together with the accepted approaches to these.

Chapter 3, which forms part of the theoretical and empirical aim, fulfils the aim of exploring the measurement of organisational culture in general and specifically through the DOCS, as well as determining the theoretical underpinnings of the Denison Organisational Culture Model and Survey within the empiricist paradigm. It was difficult for the researcher to find evidence of a specific set of uniform dimensions or characteristics of organisational culture, and the various examples of attempts to classify the dimensions of organisational culture evident in literature was collated into a dimensions table. Denison's twenty dimensions of organisational culture were used in this research to contrast or compare the different models and/or definitions of organisational culture found in literature. This integration added great value to to this research in order to create an understanding of the theoretical underpinnings of organisational culture. It was informative to find evidence that the Denison Model is more than a survey – it is a tool which can help organisations and the individuals within the each organisation to attain (Denison, 1990):

- a baseline assessment of current cultural strengths and weaknesses
- understanding of current culture relative to high-performing
- a benchmark against which to target change efforts – relative to specific desired performance (Fisher & Alford, 2000)
- clear prioritisation of short-, mid- and long-term change efforts – relative to the results sought for each of these time frames
- understanding of bottom-line related performance – with direct links to cultural elements which may support or inhibit these performance areas

- development of individual leaders who can support and sustain the desired benchmarked culture (Fisher, 1997)

- shared understanding, a shared language and shared expectations concerning culture and its implications for both individual and group results (Denison, 1995; Denison & Neale, 1996).

Chapter 4 concludes the empirical aim by presenting the reliability and a preliminary exploration of construct validity of the DOCS. The internal consistency reliability of the whole instrument as administered in a South African sample was calculated as 0.970, confirming the reliability for American populations. An internal consistency of 0,970 can be regarded as as a highly acceptable figure in terms of a generally acceptable standard. The reliability of the DOCS for use in the South African baed financial institution reflects statistically significant internal consistency. The computation of Cronbach's alpha coefficient for the total scale as well as the subscales delivered a value of 0,961. It confirms the high reliability value obtained in the split-half method. Item-total correlations are above acceptable levels.

The limitations, conclusion and recommendations are dealt with in the sections to follow.

5.3 LIMITATIONS TO THE STUDY

The study only deals with one selected South African financial institution listed on the Johannesburg Stock Exchange. The focus is on organisational culture and the reliability of the DOCS. The full investigation of the validity of the DOCS was beyond the scope of this study. The empirical research into the relationship between the organisational culture and the organisation's performance would have initiated the possibilities of developing and implementing a series of interventions – to address the respondents' expectations that were set merely by doing this study.

According to Guilford (1965), a test–retest reliability coefficient in the case of a heterogeneous test is a better indication of reliability of the test than the KR-20 coefficient or the split-half reliability coefficient. This is of significance to this research as the DOCS can be classified as a heterogeneous test (Van Wyk, 1978).

Due to large-scale change and restructuring that took place in the subject organisation, it was not feasible to use the second culture measurement exercise to determine the test-retest reliability. The restructuring resulted in a large component of the employees who participated in the research for this study being retrenched or redeployed, and a new contingent of employees – that fitted the definitions of employment equity and other strategic imperatives were appointed.

5.4 RECOMMENDATIONS FOR FURTHER STUDY

Owing to the limitations of this study it is recommended that more research be done on the DOCS in the South African context.

A test-retest study should be done to facilitate the most important index for internal consistency, which could be computed through the Cronbach coefficient alpha (Cronbach, 1951). This coefficient will provide a measure of item homogeneity or internal consistency that algebraically equals the average of the split-half coefficients as computed by means of the Guttman-formula on all possible splits of a test (Huysamen, 1997).

To determine whether the DOCS measures what it is supposed to measure, it is essential that the validity be explored further in a future study in the South African context. One of the purposes of item analysis is the determination of the degree to which items can discriminate among individuals in terms of some criterion. This criterion is usually the total score on the preliminary form and items that correlate well with the criterion, whether an external criterion or the total score are retained as good items and those with poor correlations are rejected (Guion, 1973). In this study it was not possible to employ an external criterion in terms of which the validity of the items could be determined, as the computation of validity was not in the scope of this study. According to Magnussen (1996), the notion of construct validity is useful with reference to tests measuring traits for which external criteria are not available. Guion (1973) defines construct validity as the degree to which the variance in a given set of measures is due to variance in the underlying construct.

The factors derived from factor analysis are constructs and the operational definition of construct validity is a factor loading. This permits a specific numerical statement validity that is important for both criterion and predictor measurement (Guion, 1973). By means of further factor analysis it would be possible to determine whether the survey has a relatively pure measurement of the specific theoretical construct. This can be achieved by the factor analysis of the items in the survey that individually are considered as variables. It is the analysis of the internal statistical structure of these variables culminating in a factor loading which provides the researcher with a measure of a specific construct (Smit, 1991).

When this research and results were presented to management at the subject financial institution, the need was tabled to extend the study (at a later stage) to do a systematic study of the relationship between the twelve indexes, the four factors, and a range of objective and subjective measures of performance. A second request for future research tabled by management entails a more detailed examination of the items in the survey that will attempt to develop a refined set of measures that can be used in the future research. This research should also be done on a larger sample, and should attempt to describe and understand the differences that occur between different industries in South Africa.

Based on the results of this research, it is recommended that an adapted South African DOCS be developed, or that the DOCS be adapted for the South African environment.

5.5   CONCLUSIONS OF THE STUDY

From the literature study covered in chapters 2 and 3, it became evident that an organisation's founders mainly develop organisational culture and perpetuated and maintained by various socialisation programmes and human resources functions. Organisational culture fulfils a number of important functions relating to the organisation's survival and adaptation. It also became clear that organisational culture can be managed by activating certain levers but changes generally do not happen in a short space of time. Many dimensions of organisational culture have been defined over time – these are not unique and overlap to varying degrees. It

has been pointed out that leadership is an important contributor to organisational culture not only in creating it but also in shaping changes to it.

Two important messages can be learnt from the literature research on the effect of organisational culture on performance. When an organisation is face with a crisis or trying to produce a step change in results, management should not focus on consistency alone. When new systems, processes or structures are being introduced in an attempt to gain control, organisational leaders should focus on mission and involvement as well. If an organisation's leader wants to produce breakthrough results, focus should be on mission and involvement. Between these two culture traits, all six the performance measures can be affected. The other two culture traits (adaptability and consistency) count for full and sustainable performance over the long run – but not without mission and involvement. There is a close relationship between the culture of organisations and their patterns of performance. Research by Denison (1984, 1990, 1995, 1996) culminated in the development on the Denison Organisational Culture and Effectiveness Model that underlies the DOCS.

The validity of the DOCS in its country of origin was described by means of reference to the collection of data to do validity testing. The statistical analysis referred to the process that was done to establish the reliability of the items in all the indexes comprising the model. Reference was made to the conclusion that all of the twelve indexes have acceptable reliability.

In chapter 4, the reliability of the DOCS in this specific South African sample was investigated and reported on. It would appear from the study that the DOCS is highly reliable in terms of internal consistency. Both split-half and Cronbach alpha analyses indicated high levels of internal homogeneity amongst the items. With the exception of one item, all items showed satisfactory item-total correlations. This was the case both for the total scale as well as the subscales. Investigation of test-retest reliability over time will add to this evidence. The preliminary factor analysis would seem to suggest that there are identifiable factors underlying the data, most of which correspond to an initially intended theoretical subscale in some way. The exact factor structure should be explored further.

To conclude this study it can be stated that the reliability of the DOCS, as applicable to this South African sample reflects statistical significant consistency, and the research question posed in chapter 1 has been addressed: The DOCS is a reliable tool to measure organisational culture in the research organisation, a South African-based financial institution.