UNIVERSITY OF KWAZULU-NATAL

MANAGING CHANGE AND TRANSFORMATION OF ORGANISATIONS TO LEARNING ORGANISATIONS IN SOUTH AFRICA

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DECLARATION

I Gunyaziwe Goodworth Makaula declare that

(i)   The research reported in this dissertation/thesis, except where otherwise indicated, is my original research.

(ii)   This dissertation/thesis has not been submitted for any degree or examination at any other university.

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ACKNOWLEDGEMENTS

ABSTRACT

This study is an evaluation of how to improve organisational performance by transforming an organisation into a learning one - in particular the South African National Roads Agency Limited (SANRAL). A qualitative method was used where an exploratory study was conducted through the use of a survey and interviews with selected participants. This was done in order to establish their feelings and perceptions concerning a need for change in our organisations, especially by managers or leaders.

In enabling the researcher to follow a more focussed study, nine questions were prepared and one interview question. Most of the questions revolved around the need for change, factors affecting change (whether negative or positive), benefits, and ultimately how organisational performance could be enhanced. An in-depth literature review was then undertaken by the researcher on the nature of a learning organisation and other related principles in order for the researcher to build capacity and empower himself. The current state of implementing change and transformation in SANRAL and other organisations was compared with that suggested by the literature.

Twenty-five questionnaires were administered to SANRAL and other stakeholders' employees, the responses were analysed, and the results were compared with what is suggested by the literature.

Most of the respondents agree that there is a need for paradigm shift in organisations, particularly SANRAL. Learning organisations' principles featured prominently in the participants' responses. It was also thought that the challenge is how to manage and lead in these rapidly changing times. Issues like communication, participative management and so on were found to be key factors when leading change in an organisation, and vital for organisational performance.

The literature review revealed that management needs to be more proactive in their approach when leading under these uncertain conditions. Finally, the dissertation highlighted the shortfalls and critical issues that organisations need to focus on in order to survive in changing environments, while the literature review provided some of the guidelines in addressing these challenges.

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CHAPTER ONE: INTRODUCTION

1.1 Background

This research is intended to concentrate on how to enhance organisational performance by transforming an organisation into a learning organisation (in particular SANRAL) as a process that all public organisations or parastatals in South Africa should be engaged in, with transformation being the driving concept due to the fast changing times (both social and political) that we are currently experiencing.

SANRAL has been going through a change period since its establishment in 1998. My document will further explore the applications of systems thinking theories in practice, particularly in our organisation.

One of the difficult responsibilities of a manager is leading change in an organisation. The study will focus on demonstrating how systems thinking applications yield positive results when it comes to changing an organisation to a learning institution. There is now a need for a strategic thinking process that will see organisations achieving their goals. Organisations that learn faster will be able to adapt easier thereby enabling themselves to achieve significant advantages.

SANRAL was formed and constituted in 1998 by parliament under the National Roads Act of 1998 with the National Minister of Transport as the shareholder. The primary mandate of the agency is to be responsible for all national roads in South Africa. This includes the construction of new roads, the maintenance of existing infrastructure, etc. In this regard the agency became a parastatal, because 60% of its budget comes from the national fiscus, while 40% is the toll budget from the private sector.

1.2 Problem Statement

The majority of the complement of the SANRAL staff came from the old National Department of Transport that existed prior to 1994. This meant, therefore, that the new management under the leadership of the CEO was tasked with the responsibility of transforming the organisation to reflect the new South Africa and the general global changing environment.

The CEO's responsibility was not going to be easy as a new culture had to be developed in the organisation. The new culture involved new Government Acts, policies, transformation, globalisation, affirmative action, black economic empowerment, etc. Management was faced with the task of ensuring that the new government policies were implemented and the issue of transformation was addressed. This was an extremely challenging task for the management, as most of the staff came from the old order South Africa and resisted any changes that were initiated.

In addition to the above, there was the general problem of global change in terms of how organisations were functioning. Most of the organisations in the world were re-structuring and re-designing their business strategies in order to become more successful. Some of the reasons for these global changes were:

- that global competition was becoming more intense,
- that new technologies were being invented every day,
- that organisations were beginning to view the world as a whole, and
- that new markets were emerging due to global political changes.

The above challenges, as well as the political changes that were happening in South Africa, created an unpleasant atmosphere within SANRAL, especially for those employees that had moved with the company from the old National Department of Transport. There was a general resistance by the employees to accept that it was time for SANRAL to change and align itself with the outside world.

This resistance to change became a huge problem facing the SANRAL management. It was a problem facing all firms and state institutions in South Africa. People resisted (and still do resist) change, and the issue of the culture of members of staff could sometimes result in resistance to change. There was generally low morale within the organisation. This of course resulted in the decline of organisational performance.

SANRAL management was then faced with the problem of creating a platform whereby all of these problems would be seen as challenges and upon which all of the employees in the organisation would be geared to deal with the problems in order to improve the situation and enhance organisational performance.

Fig 1.1 below attempts to map the challenges that have been referred to above and the general environment at SANRAL. The diagram illustrates the relationships between these challenges. Gharajedaghi (2006) defines a system of problems as a mess. As shown, the nucleus of the system is the general global and political changes that were prevailing in and outside of SANRAL. These problems then formed a system as illustrated in Fig 1.1. The directional arrows then demonstrate how one problem/challenge relates to another, and so on.

As can be seen in Fig 1.1, these changes led to the need for restructuring, transforming organisational members, etc. Then again there was a need for strategic planning, which led to the changing environment. After the accession of the new government, a lot of new legislation was enacted,and the attempt to implement this produced resistance to change. In summary, Fig 1.1 below illustrates the interconnectivity and interrelation of the components of the SANRAL system as a result of change.
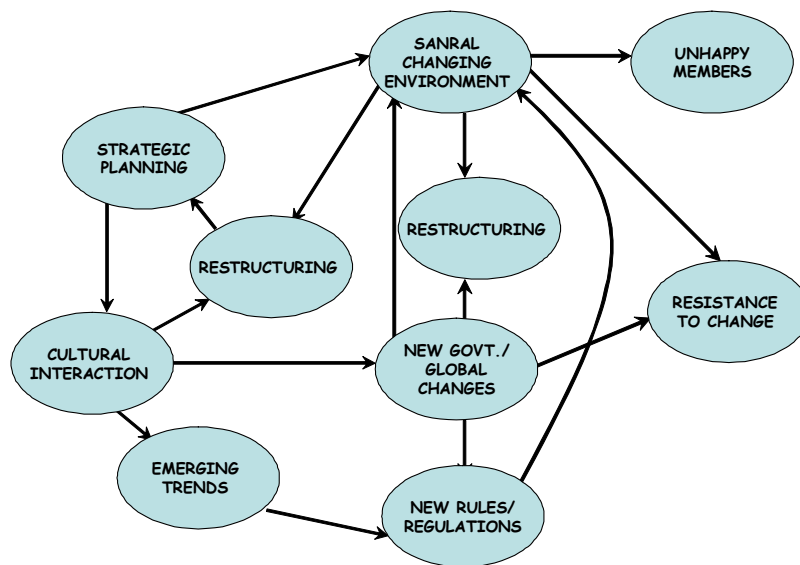
Figure 1.1 Challenges to SANRAL Transformation Changes

This research will therefore explore the viability of transforming SANRAL and other similar government institutions into learning organisations in order to address these problems. Marquardt (1996) describes a learning organisation as one that is capable of easily adapting to environmental impacts while anticipating any environmental changes that may occur. He further describes it as being capable of accelerating and developing new policies, processes, etc for the organisation. Marquardt (1996) characterises a learning organisation by its having

highly trained or skilled personnel who are capable of learning from partners and competitors. This would enable them to gain knowledge quickly and transfer from one side of the company to another.

A learning organisation is capable of learning cautiously and effectively from its previous errors while at the same time being able to shorten the time taken to implement strategic changes, argues Marquardt (1996).

Every organisation should be a learning organisation if it is to cope with complexity and the rapid changing environment. Underlying the notion of learning organisations is systems thinking theories. Systems thinking is the ability to see things as a whole, as well as to understanding the interrelationships between the parts of a system. This concept will be further discussed in the forthcoming sections.

Every day people talk about a world where complexity is increasing and institutional orders are disappearing. The phrase 'institutional orders' refers to situations where everything is predicted and is done according to certain hierarchical instructions. A number of developments of theories of systemic behaviour of organisations have emerged in recent years, namely system dynamics, chaos theory, dissipative structures, complex adaptive systems, etc.

1.3   System Dynamics

Stacey (2003) describes systems dynamics as a system that entails the construction of mathematical models that show how the system changes states over time. This involves relationships of non-linearity and non-equilibrium states. These non-linear states involve the possibility of positive as well as negative feedback processes. When system dynamics is used in learning organisation theory, the nonlinearity is incorporated by adding positive feedback to the negative feedback loop that forms the basis of cybernetic systems.

Stacey further explains that in system dynamics there is a possibility that a system may display non-equilibrium behaviour as it moves back and forth between positive and negative feedback. The simplest way to interpret system dynamics is to see it as a feedback system. The feedback processes will be discussed further in the study at a later stage.

1.4 Chaos Theory

Chaos theory is comprised of stable and unstable behaviours, as well as predictable and unpredictable states, as described by Stacey (2003). In chaos theory, the system does not refer to any outside reference point but to itself. It is therefore inappropriate to use the concept of feedback in this instance. This means that its state depends only on what it was last time.

A chaotic system never returns to the same exact state and yet the outcomes are bounded and create patterns that reflect a complex underlying relationship. A chaotic system differs in both physical and social world environments. In the physical world, unpredictability arises due to much iteration, nonlinearity, etc. The major difference between the physical and the social is that physical systems are made up of natural laws that are unchanging, while social systems depend upon interference by individuals and organisations, according to Stacey (2003).

In order to understand the relevance of chaos theory, there is a need to conceptualise organisations/industries as complex, dynamic and non-linear systems. Companies interact with each other and with other actors in their own environment, like consumers, labour, financial institutions, government, etc. Due to the fact that these interactions are strategic, decisions by one actor take into account envisaged reactions by others, and by so doing, interdependence is reflected.

1.5 Dissipative Structures

When systems pass through the states of instability and non-equilibrium, they reach certain levels where they spontaneously self-organise to produce a different structure or behaviour that cannot be predicted from the original state. This new structure is called a dissipative structure because it dissipates energy in order to sustain the new state, according to Stacey (2003).

Dissipative structures are non-linear conditions operating far from equilibrium and their long-term future development is radically unpredictable. The ability to self-organise and emerge in these structures is one of the major insights of a move from chaos theory to dissipative structures. If the long-term is unpredictable, how does one plan? This brings us to complex adaptive systems theory.

1.6   Complex Adaptive Systems

The death of communism in Soviet Union (USSR) was a typical example of unpredictable change in a society. This happened at a time when the whole world thought that communism was very strong in the Soviet Union as an alternative politically ideology to imperialism. Then all of a sudden things started to change, in that there were revolutions all over in the small states and demands for change of government. Things started changing and people's calls were heard and the whole system self-organised itself and there was stability again in the Soviet Union.

Complex adaptive systems, as described by Stacey (2003), consist of many agents with a set of rules. These rules demand that each agent adjusts its behaviour to that of other agents. In other words, the agents interact. For example, in an organisational model, agents may be groups or individuals. Sometimes, agents of a different nature may or may not have different schemata.

Complexity science is all about identifying common features among these agents and how they interact within their environments. The trajectory that these agents travel or evolve around is sometimes called fitness landscapes.

Complex adaptive systems models bring a new dimension of dealing with complex organisations. Complex adaptive systems models have all the characteristics of a learning system which comprises among other things of self-organising abilities, schemata, and so on. Schemas are defined as sets of rules that govern the behaviour of systems. According to Gell-Mann (1994), the length of the schema needed to predict and describe the properties of an incoming data stream by identifying its irregularities is called complexity. A new way of thinking, conceptual framework and seeing the world holistically, are all provided in the theories of complexity.

1.7   Self-Organisation

Self-organisation is defined as the emergence of new entities or patterns of behaviour of an organisation resulting from interactions between agents. Each level in an organisation has got its relationships and the new levels would obviously have their own relationships and properties.

For example, in human systems, unlike in biological and physical ones, the different levels could be categorised as the lower level, consisting of individuals, the next level, which is the family, clan or company, and the next level, which could be the nation, the city, or the economic sector. This clearly demonstrates that complex adaptive systems operate in multiple levels/environments, with people being involved either individually or collectively.

1.8   Co-Evolution

Co-evolution is described as what happens when agents interact not only with other agents at the same level/environment in the organisational hierarchy, but also with other agents at different levels, such as a company's relations with SARS or pension fund agents. Human organisations evolve using knowledge and information.

1.9   Punctuated Equilibrium

Maxfield (1996) describes punctuated equilibrium as the state in complex adaptive systems when stable patterns are generated for long periods with a transition into rapid change for short periods. It is impossible to predict when transitions will occur or what the resulting patterns will be in complex adaptive systems. In the human world it is found that these reactions, stability versus instability, occur at all levels and the resulting patterns are unpredictable.

An example of this equilibrium was the perception created by the government that there had been an increase in employment in South Africa over the past 10 years, while the trade union, Cosatu, had different opinions about this because they were operating at the labour-force level. They in fact discovered that this pattern had changed in recent years in the sense that South Africa was experiencing an increase in unemployment.

1.10   The Edge of Chaos

The Edge of Chaos is a situation where the system becomes both predictable and unpredictable. According to Kauffman (1995 cited by Stacey 2003, p.71), this is when patterns are generated by emergent systems that have neither too little nor too much form, and are neither chaotic nor static, but are interesting due to the coupling of individual and global behaviours.

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1.11   Purpose of the Study

After having conducted part of the literature review I realised that there is tremendous power in the idea of managing change. The study will then concentrate on real, practical issues facing parastatals/public sector organisations in South Africa, with special reference to SANRAL.

Transforming an organisation to a learning one can help us manage change better and thereby enhance organisational performance. And again this study will provide a lot of information with regards to managing change and transformation in our organisations. The following are some of the research questions that this research will endeavour to address:

- What types of organisational forms prosper under rapidly changing conditions and uncertainty?

- What are the critical organisational characteristics that are capable of facilitating and hindering learning in these conditions?

- What types of skills are required by managers and employees in organisations that function well under uncertain conditions?

- How do they learn these skills?

- What is the benefit of organisational learning in an organisation?

- How are new insights in an organisation applied and developed?

- Who carries out what learning objectives? Who decides whether different parts of an organisation must learn different things for effective learning to happen in the whole organisation?

- How can a systems-thinking approach help SANRAL manage change better and improve its organisational performance?

These questions are significant because there is still substantial disagreement between management and staff about whether the changes that SANRAL is currently experiencing

represent a fundamental paradigm shift. The study will also demonstrate what is meant by operating under environments or conditions of rapid change, uncertainty and complexity.

1.12   Motivation for the Research

It is important for organisations to realise that managing change effectively is of utmost importance in organisations in order to enhance organisational performance. The study is significant as it will try to unlock and explore some of the systems-thinking theories in order to address challenges facing our organisations in these rapidly changing times. Gharajedaghi (2006) describes systems thinking as seeing through chaos, managing interdependency and understanding choice.

As mentioned before, organisations should change and become learning organisations in order to manage change better and thus enhance their organisational performance. A further analysis of a learning organisation will be provided under the literature review sections in the next chapter. According to Marquardt (1996) organisational learning refers to the processes, the building of skills and the utilising of knowledge capacity.

As alluded to before, this study will endeavour to provide a solution to a problem that is faced by many organisations.

Finally this study is of great significance as many organisations in South Africa are undergoing major structural and organisational changes due to the political, social and economic changes that have taken place in the last 10 to 13 years of post-apartheid government. It is therefore imperative that most organisations change to reflect current dispensations and also to address issues like affirmative action, employment equity, black economic empowerment, etc. Some of these policies have been formulated to try and address the imbalances that have been created due to apartheid policies.

1.13   Benefits of the Study

The following are some of the benefits which may derive from the study:

- There are organisational issues/problems that are not always visible in an organisation; hence this type of study is required to expose those underlying

problems. An example of this type of problem is the feelings of a member of an organisation about change in the organisation.

- The study may lead to an understanding of the difficulties facing management when leading during rapidly changing times, and what the possible approaches/solutions are when addressing the concomitant problems.

- The study may provide insight into organisational dynamics and show how a systems approach can assist in dealing with complexity in our organisations. A systems approach is intended to reveal and make sense of the behaviour of members of an organisation. It allows the analysis of problems to be addressed as a whole, by comprehending the system within which these problems are situated, instead of addressing them in isolation.

1.14   Structure of the Dissertation

- **Chapter 2: Literature Review**

This chapter will review the literature which forms the theoretical basis of the whole dissertation. In this chapter the researcher will discuss the theories and models that are associated with the subject of a learning organisation. The relationship of systems thinking as a critical organisational learning skill to learning in organisations will also be discussed. The chapter will also address how different management and leadership styles can help improve organisational performance in organisations like SANRAL.

- **Chapter 3: Research Design**

The research method adopted in this study will be discussed in this chapter. The reasons for selecting a qualitative research design will also be explored. In addition, the types of data collection will be identified and discussed. The sample size and the extent to which the information/data will be split between internal and external professionals will be indicated.

- **Chapter 4: Results and Analysis**

The focus will be on the presentation and interpretation of results in this chapter. This means that an evaluation of the findings obtained from the data collection will be analysed. These results will be analysed relative to the objectives of the study and conformance to the theories discussed in chapter 2.

- **Chapter 5: Recommendations and Conclusion**

Conclusions will be drawn in this chapter, based on the outcomes of chapter 4 and discussions of chapter 2. Recommendations will also be made. These will include but not be limited to how effective leadership can assist an organisation in terms of performance. These conclusion and recommendations will be more specific to SANRAL in that they will provide some direction of how to deal with change in organisations.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

As alluded to before, organisations have undergone important changes in recent years, which have necessitated that they undergo improvements with regards to organisational performance. In yester years organisations used to concentrate more on production-based processes. In recent years, due to global changes, organisations have been compelled to change focus and put more emphasis on development of their workforce in order to continuously sustain or improve organisational performance. This has been proved by the rise and fall of big conglomerates in the past due to their emphasising production only.

In this chapter, learning organisation and organisation learning principles, concepts and models will be discussed, and how they can help improve organisational performance by transforming an organisation into a learning one. An overview of how a learning organisation benefits by integrating systems-thinking principles will also be discussed in this chapter. As mentioned before, SANRAL will be a reference point in these discussions.

Chinowsky, et al (2007) propose that a learning organisation culture be introduced by organisations in order to enhance their performance. As most organisations face challenges such as an ageing workforce, globalisation, lack of organisational growth, etc, it is imperative that they transform into learning organisations in order to address these challenges, argue Chinowsky et al . Chinowsky et al further explain that learning organisations are characterised by continuous knowledge enhancement, which is fundamental in any business environment.

SANRAL is not different from these organisations. It is therefore essential that SANRAL be transformed to a full learning organisation in order to realise the benefits that will accrue from the change. An analysis of the nature of a learning organisation as well as the benefits associated with it will be dealt with in this chapter. Furthermore, a discussion of organisational learning as compared with a learning organisation will also be explored, as these two concepts tend to create confusion among many people.

According to Chinowsky et al, the 1950s through to the 1970s saw an era where organisations' focus was on production. But this has changed in recent years, where the focus is more on knowledge development and preservation than production.

Chinowsky et al argue that changing an organisation from a reactive learning approach to a more proactive learning culture will require a significant amount of time and resources. This means that the drive to remain competitive in a learning organisation culture is to continuously improve the organisation's knowledge base. Chinowsky et al insist that organisations, communities and individuals are important components of a learning organisation. An organisation is the overall corporate entity which includes the management and the general staff personnel. The management is a significant component of a learning organisation, since the management provides encouragement and endorsement of learning organisation principles.

In this context, a community is a group of individuals engaged in similar activities in an organisation. One of the responsibilities of the community is to ensure that knowledge is disseminated across the organisation, according to Chinowsky et al . Chinowsky et al conclude by describing the individual as the cornerstone of a learning organisation, since knowledge is acquired by the individual and passed on throughout the organisation.

The following are some of the critical issues facing organisations like SANRAL nowadays:

- Re-organisation, restructuring and re-engineering.
- The skills shortage, arising from the fact that schools are unable to adequately prepare their pupils for work in the twenty-first century.
- The multiplication of knowledge every two to three years.
- Global competition between the world's most powerful firms.
- Increased breakthroughs of new and advanced technologies.
- The acceleration of the need for organisations to adapt to change.

2.2   Learning Organisations

2.2.1 Introduction

King (2001) describes a learning organisation as one that focuses on developing and using its information and knowledge capabilities in order to produce high-powered information and knowledge to produce the desired results. In other words, a learning organisation creates,

acquires, and communicates information and knowledge and produces enhanced results as a consequence of behaving differently.

A learning organisation, according to Ortenblad (2001), is a form of an organisation and not an activity or process. Some authors describe a learning organisation as something that does not exist naturally but is created or activated in an organisation. In others an effort is required for a learning organisation to exist. This explains the reason why a learning organisation is often associated with the principles of change, adaptation, growth or learning whichhappens on a continuous basis. These are some of the distinctions between a learning organisation and organisational learning. The latter will be discussed at a later stage in this chapter.

Ortenblad further argues that some authors regard a learning organisation as a process or some form of organisational learning but the assumption was never fully developed and thus will not be discussed in this study. In terms of who are the beneficiaries in a learning organisation, Ortenblad believes that in a learning organisation the individuals are the ones that learn. This leads to knowledge being stored inside the individuals in the organisation. An example of knowledge being stored in an individual will be in the form of brains, bodies, experience, etc. And again, Ortenblad argues that even in team learning in a learning organisation, knowledge is normally kept in the individuals since it is the individuals that learn in the team. Sometimes the transfer of knowledge happens between the individuals.

According to Ortenblad knowledge can also be stored outside the individuals, though the majority of authors believe it is commonly stored inside the individuals. It is therefore significant in organisations like SANRAL to fully comprehend the dynamics of a learning organisation as the organisation seeks to transform to a learning one.

King (2001) describes a learning organisation as having six important and distinct strategic options, namely, information systems infrastructure strategy, intellectual property management strategy, individual learning strategy, organisational learning strategy, knowledge management strategy and innovation strategy. These may be developed and implemented in order to pursue a learning organisation goal.

2.2.2   The Information Systems Infrastructure Strategy

Information systems strategy involves a mindset that results in the collation of information and transforms it into explicit and more valuable information. The information systems' field

operates on the paradigm of identifying relevant information, obtaining it and incorporating it into databases that are made ready and available to users in the form of reports and so on.

It is therefore recommended that organisations like SANRAL must choose to employ an information systems infrastructure strategy in pursuit of becoming a learning organisation by creating databases and so on.

2.2.3   The Intellectual Property Management Strategy

This is a strategy relating to intellectual assets that are in research report form. An organisation like SANRAL could pursue the intellectual property management strategy by becoming a learning organisation in order to create a financial incentive for individuals and groups to leverage the value of intellectual property.

2.2.4   The Individual Learning Strategy

As described above, this strategy emphasises the training and education of individuals. The main focus is the improvement of the value of the organisation's human resources. The approach maximises the opportunities of both informal and formal training and education. This takes the form of attending training courses and seminars, on the job training,etc. The focus and objective of the individual learning strategy is the creation of more valuable human capital through the transfer of explicit and implicit knowledge. The creation of such human capital that is generated through the transfer of explicit and implicit knowledge provides the focus and the objective of the individual learning strategy.

Senge (1990) describes individual learning as being at the heart of a learning organisation because organisations are measured by the quality of their people in terms of their being skilled, informed and motivated. It is therefore recommended that people in an organisation take more responsibility for their own learning and development. Furthermore, members in an organisation should go beyond individual responsibility for learning by getting together to organise and design learning opportunities for themselves and the rest of their colleagues.

This type of strategy is very significant for an organisation like SANRAL as it seeks to establish itself in terms of human capital investment and as transformation is at the forefront of its agenda.

2.2.5   Organisational Learning Strategy

Organisational learning and learning organisation are two distinct processes. While the two systems are compatible, they are not identical. Organisational learning is one of the oldest systems but is not easily comprehended. Ortenblad (2001) argues that every organisation is undergoing organisational learning in one way or another but that not every organisation is a learning organisation. This concept will be discussed more fully in section 2.3 under organisational learning.

2.2.6   Innovation Strategy

The other learning organisation strategy that is vital for an organisation like SANRAL is called innovation strategy. This is a process that is proactive and undertaken by organisations in order to advance the aim of generating, analysing, developing and implementing new things in terms of processes and techniques. The innovation process has been evident in many organisations for a long time, but has recently attracted more attention then before because of the fierce competition that prevails between organisations nowadays.

Innovation focuses on organisational creativity. This means that the objective of this strategy is to maximise organisational innovation through creativity-enhancing activities.

2.2.7   Knowledge Management in Learning Organisations

Knowledge is vital in a learning organisation and even more important than financial, marketing or technological assets. Individuals can come and go in an organisation but valuable knowledge might not be lost. Marquardt (1996) defines knowledge management as the management of accumulated and generated knowledge. This of course includes the accomplishment, transfer, storage and utilisation of knowledge. This may come in various forms in an organisation e.g. policies, standards, codes of practice, etc.

The knowledge management strategy focuses on the acquisition and communication of professional expertise in an organisation, according to King (2001). With respect to the acquisition of knowledge, organisations obtain it from both external and internal sources with the latter being in the form of conferences, consultants, benchmarking other organisations, hiring new staff and partnering with other firms, and the former consisting of learning from other parts of the organisation.

The storage and retrieval of knowledge are also vital in an organisation. At the same time the organisation must determine first which information can be stored. The storage of information can take the form of databases, as-built records, specifications, standards, etc. On the other hand, knowledge transfer and utilisation entails the electronic and interpersonal movement of knowledge and information. This can take the form of memos, reports, training, mentoring, etc. Marquardt (1996) describes a few strategies of knowledge management:

- An environment of expectation is created in the sense that everybody is responsible for collating and transferring knowledge.
- Knowledge that is relevant and external to the organisation is captured.
- The organisation arranges learning events within itself to capture and share knowledge.
- Innovations and inventions are rewarded and encouraged.
- Team mixing and job rotation are encouraged to maximise the transfer of knowledge.

A variety of knowledge and learning-related organisational strategies can be developed and implemented in pursuit of a learning organisation. Because these strategies are quite distinct and have features that may be in conflict, careful consideration should be given to each strategy.

Although each of the strategies described above can serve as the start of as attempt to become a learning organisation, no single one on its own is sufficient. In other words, a mix of all of the strategies creates a platform on which a higher level of learning may occur. Mixing them is, of course, not an easy process as each strategy requires a certain culture if it is to prosper.

Marquardt (1996) describes a learning organisation as one that possesses the following capabilities:

- The ability to anticipate and adapt more readily to changes in environmental impacts/situations.
- The ability to get knowledge transfer expedited from one level of an organisation to the next one.
- The ability to stimulate sustainable enhancement throughout the organisation.

Chinowsky et al (2007) identify five characteristics that define a learning organisation, namely leadership, processes and infrastructure, communication, education, and culture. Leadership is about the ability to be at the forefront of the organisation pertaining to the implementation of a learning organisation strategy. This entails leading in the dissemination of new knowledge in the organisation, promoting experimentation and advancing the idea of a shared vision by taking proactive steps to achieve that, explained Chinowsky et al (2007). This concept will be further discussed later on in this chapter.

Chinowsky et al (2007) further describe processes and infrastructure as the combination of technical infrastructure and management capabilities that is needed in order to successfully implement a learning organisation culture in an organisation. This involves the promotion of management and exchange of knowledge, the dissemination of new knowledge throughout the organisation, and the provision of a proper resource management plan in order to implement the plans.

The interaction of the organisational community and some individuals within the organisation is characterised by good communication, according to Chinowsky et al (2007). This helps to enhance the free sharing of knowledge at all levels of the organisation. Communication entails the reduction of communication barriers, establishing organisational communities and sharing knowledge.

Another characteristic of a learning organisation is education. This is the commitment shown by both the employees and management to continuously engage in educational opportunities for the employees in order to promote a learning organisation. This is vital in bringing in new knowledge into the organisation. Education involves developing a structured approach, the dissemination of knowledge, and the valuing of both community and individual education.

The final characteristic, according to Chinowsky et al (2007), is the culture of an organisation. This is the development of a system that promotes, rewards and supports learning as the essential part of organisational improvement. This involves the acceptance of new ideas in a culture that is open to change. Furthermore, organisations should ensure that learning or change inside the organisation must be equal to or greater than that outside the organisation, according to Senge (1990).

The body of an organisation or the structure where learning takes place is sometimes referred to as an organisational sub-system. There are four elements/dimensions that influence the organisational sub-system: strategy, structure, vision and culture. A solid foundation about

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learning is a shared vision. Unless an organisation tends to become a learning organisation, it will not be able to succeed or accomplish its vision.

Broer and Rolton (1997) describe a learning organisation as a journey without a destination. SANRAL embarked on a journey in 1998 (when it was formed) as a means of accomplishing and sustaining success as a public sector agency. In an environment of continual change, organisations like SANRAL should recognise that their competitive advantage is learning and adapting faster.

As described above, learning organisations purposefully engage in collective and individual learning and innovation while using the results of learning to achieve better results. This is sometimes called feedback processes. These will be dealt with later in the chapter. Learning organisations understand that making mistakes is a valuable and an imperative part of learning, as long as lessons are learnt from the mistakes.

Encouraging organisational members to participate in the design of the organisational vision will help learning organisations to facilitate the growth of personal responsibility. In a learning organisation people are encouraged to develop their own ideas, to speak out and to challenge the actions of others in an environment of trust and openness. There is also an open and questioning style of communication. This means that the participation of organisational members is valued at all levels of the organisation which then facilitates dialogue as well as the exploration of issues. In this way members of a learning organisation are empowered and thus able to build their capacity in terms of analysing the problems they face, identifying effective solutions and developing sustainable responses. This also enables the learning organisation to continually improve its ability to change and adapt to new cultures, especially to external environmental challenges.

Culture is about creating an environment of learning. Creating a platform of taking risks, trying new approaches, sharing information etc, all form part of a learning culture.

Sheaff and Pilgrim (2006) note that there are certain necessary conditions for a learning organisation to exist, as well as to accomplish its objectives. They argue that a learning organisation is a much sought after type of organisation but not easy to implement, especially when there is reluctance from management. They further argue that a learning organisation is achieved through a shift in organisational culture. This will be further discussed later on in this chapter.

Sheaff and Pilgrim show that a learning organisation entails maximising the competency of an individual, systems thinking that is open, team learning, updated mental models and a vision that is cohesive.

Maximising an individual competency involves building on an individual's strength by supporting him or her to reach his or her full potential. This is achieved by educating the individual continuously. Sheaff and Pilgrim describe systems thinking that is open as involving leaders in organisations in seeing the bigger picture and how they fit in that picture. Team learning is also significant especially when teams are given assignments that must be delivered. A team consists of all the people in an organisation at different levels or ranks. It must also be remembered that team learning in a learning organisation involves individuals learning in a team.

According to Sheaff and Pilgrim, the updating of mental models deals with people in the organisation comprehending their own thoughts and appreciating colleagues' imaginations. Open systems thinking and team learning rely on people comprehending their own and other members' mental models. This of course assists in increasing levels of trust among colleagues.

A vision that is cohesive refers to a certain purpose that is unifying in an organisation, according to Sheaff and Pilgrim. Furthermore, learning organisations possess a shared vision among their members. The cohesive vision is a significant feature that helps to develop a learning organisation. It is in this light that leadership is vital in championing learning and develops a learning organisation that really learns.

Once leadership is working well, an organisation develops what Sheaff and Pilgrim define as a learning culture. One of the most essential aspects of a learning culture is to adapt easily and be flexible. According to Sheaff and Pilgrim, success is celebrated in learning organisations. Similarly, complacency is avoided in learning organisations while mistakes that are committed are tolerated. Finally, the experience and knowledge gained is shared among all members in the organisation.

Nafukho (2008) argues that the necessity of transforming public organisations like SANRAL is driven by the knowledge demands that are taking place globally. This means that people working in organisations like SANRAL must be willing to continuously learn in order to cope with change. He further argues that effective leadership and management are key to success in

organisations. A learning organisation is also defined as the one that has the ability to learn, adapt and accept change in response to new challenges.

Senge (1990) identifies two reasons why learning is significant nowadays, namely, survival and excellence. Survival means that for any organisation to survive, change inside it must be equal to or greater than change in the external environment. The second one is excellence. This means that, due to the high level of competition that exists among organisations, every organisation must strive to reach higher levels of performance.

According to Carley (2001), learning occurs at both individual and structural level. Individual learning occurs through experience and verbal knowledge. Learning by experience results in the individual changing his/her mental models. Carley further explains that structural learning occurs when there are changes in the social network. That results in deleting or adding of information, but this time by the whole organisation. Further discussions pertaining to knowledge and learning will be take place later in this chapter.

As said before, learning within an organisation is ultimately linked to the organisational culture. Again, as defined by Carley, culture is an arrangement of basic assumptions that the organisation members learn as the organisation goes through its problems of adaptation and integration with regards to external and internal environments. Once this is working well attention can be paid to teaching new members of the organisation. In other words, culture is the way in which the organisation responds to external and internal environments as well as the framework that guides the individuals in the organisation to relate to one another. Thus individual relationships provide a platform for communication that plays a significant role in the culture of an organisation.

Carley further argues that the content of culture in an organisation relies on what the individuals have learnt because of the mechanism (whereby culture is communicated and adopted), as provided by the organisational members' relationships. This means that knowledge exists between and within individuals as well as between and within organisational groups in an organisation. In this way the distribution of information in an organisation is altered as the individuals learn.

In order for an organisation to enhance its performance, there needs to be change. Change can occur only if at least the following two things exist:

- Firstly, various leaders in an organisation need to be working together towards a common goal.
- Secondly, the leaders need to review their old ways of doing things if they no longer work.

The second point is not easy as it is often seen as being disruptive leadership, but it helps to bring about new and innovative ways of doing things in an organisation. The above two assumptions lead to an argument that effective leadership plays a vital role in bringing about effective change in an organisation and thus improving its performance. This will be dealt with later in the chapter when the researcher looks at leadership in a learning organisation.

According to Marquardt (1996), there are five distinct sub-systems that define and incorporate learning, namely technology, learning, knowledge, organisation and people. If any of these sub-systems is absent or not functioning well, the effectiveness of the other subsystems is significantly affected. Marquardt, goes on to say that the learning sub-system is comprised of three complementary dimensions namely:

- Learning levels – individual, group and organisational,
- Learning types – adaptive learning, active learning, etc,
- Critical learning skills - team learning, shared vision, systems thinking, personal mastery and mental models.

As mentioned earlier on, there are three categories of learning in an organisation, namely individual, group or team and organisational learning. Individual learning is about the professional development of individual employees in an organisation. In other words, there should be individual development plans for all of the employees in an organisation. This means therefore that there should be a partnership or collaboration between the employees and organisation to help in their long-term career developments.

Group or team learning is about a team or group of people being able to work, think, create and learn together as one entity. This means that the team must learn how to learn as a unit. In order for teams to be successful learning entities, they must share their experiences with other groups or teams in the organisation. Organisational learning is about the sharing of the understanding, knowledge and mental models of all of the people in an organisation. It is also about building on past experiences and knowledge. This is based on an organisation's policies and strategies.

As alluded to before, learning in an organisation involves individual and organisational level learning in order to address change and resistance to change. In the case of organisational level learning individuals do learn, according to Ortenblad (2001). Senge (1990) suggests that most of the work in an organisation is undertaken by teams or work groups learning as individuals. Sometimes it is possible to find different teams serving different learning goals for the organisation. As defined above, team or group learning breaks down when teams are unable to reflect on their actions.

Marquardt (1996) identifies four types of learning in an organisation, namely adaptive, anticipatory, deutero and active learning. Adaptive learning is when an organisation or individual learns from reflection or experience, whilst anticipatory learning occurs when the organisation learns from expectations of the future, or vision. Deutero learning arises when an organisation learns from reflecting critically on assumptions that were taken for granted. Finally, active learning entails working on real problems as a group or team. Its focus is on the learning acquired as well as implementing solutions.

As said before, according to Senge (1990), there are five critical learning disciplines in an organisation, namely, systems thinking, mental models, personal mastery, shared vision and team learning. These disciplines develop separately but can work together or contribute to one another's success.

Personal mastery is the continuous clarification and deepening of one's personal vision and seeing things objectively. Again, personal mastery is about helping people to accomplish their potential fully through development of competence and skills. As a matter of fact, it is not possible for organisations to begin to learn unless individuals learn. When people in an organisation strive towards personal mastery their work commitment increases. They start to take more initiatives and become more creative. Lastly, they develop more ability to adapt to change as well as having a broader sense of responsibility.

Marquardt (1996) describes mental models as how we visualise or generalise the world around us and how we react to it. This is sometimes referred to as the images or pictures that one creates about the world. According to Broer and Rolton (1997), new solutions to problems can be found by openly, respectfully and trustfully sharing views and developing knowledge about one anothers' and the organisation's assumptions. This is where people display or expose their own effective thinking and make the same thinking influence others.

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\shared vision is defined as the ability to have a common picture or image of the future the world is trying to construct. People express their ideas about the purpose, vision and how their work fits into the whole world. This is achieved by building a shared vision, which is an ongoing process. More often than not, organisations have goals or missions that they aspire to achieve.

Team Learning is the capacity of a team or group of members to engage in developing skills and how to learn together. This is different from team building, where it's about how teams do things together. The other benefit of team learning is that the individuals develop more quickly than learning individually.

Systems thinking is the fifth discipline and is where the rest of the disciplines integrate. In a learning organisation all disciplines interrelate. A good example is where an organisation applies systems thinking in a case where there is no shared vision of the future. This has been common in South Africa in many organisations because of restructuring and transformation.

2.3   Organisational Learning

2.3.1   Introduction

As alluded to before, the terms organisational learning and learning organisation have been used interchangeably by many authors without distinguishing them. Again, there is a clear distinction between the two concepts.

As Ortenblad (2001) explains, organisational learning is a process or activity that happens in an organisation, while a learning organisation is a form of organisation. In other words it is possible that organisational learning takes place in a learning organisation but not vice versa. This does not happen all the time as organisational learning exists naturally without any effort, while the creation of a learning organisation requires an effort, according to Ortenblad. This means that organisational learning takes place in all organisations but only some of them are learning organisations.

Furthermore, organisational learning authors emphasise comprehending the processes and nature of learning in organisations. Unlike a learning organisation, organisational learning has to exist in organisations in order for them to survive, according to Ortenblad. In other words,

organisations exist because there is organisational learning taking place in them, according to Kim (1994, cited in Ortenblad 2001 p. 127). Ortenblad goes on to state that organisational learning is something that is known in an organisation.

Another factor distinguishing organisational learning from a learning organisation is how knowledge is stored. Some authors argue that organisations learn as individuals or as an organisation, or that individuals learn in an organisation. In organisational learning, according to Cook and Yanow (1993, cited in Ortenblad 2001 p. 129), an organisation learns as a collective and not as individuals. At the same time Ortenblad states that organisational learning exists in two different forms, namely old organisational learning and new organisational learning. Since organisational learning is split into two distinctive processes, its learning and knowledge locations are also different. Therefore in old organisational learning, learning takes place in the individuals in an organisation as well as in an organisation as an individual. In this case knowledge is stored outside the individuals, in the memory of the organisation. For example, it is in the form of rules, procedures, manuals, etc in the organisation. This is different in new organisational learning, where learning takes place in the collective. This means that learning, in this case, happens though everybody participating. Furthermore, knowledge cannot be stored but depends on the situation at hand.

In this study organisational learning will not be discussed as taking two distinctive forms as defined by Ortenblad, but instead as one concept - organisational learning.

Nafukho (2008) describes organisational learning as the outcome of a process whereby specific strategies are implemented by an organisation in order to advance learning. It is a process that entails the sharing of knowledge and knowledge communication. It also involves the integration of new knowledge into existing systems and routines of the organisation. Organisational learning process puts more focus on practices that are set up by leaders to promote learning in order to manage change in organisations.

Edmondson (2000) conducted a comprehensive study of learning in a medium-sized firm in five different groups, namely top and middle management, product development, internal services and production, to show how different groups can interact to achieve desired results.

The study demonstrated that team or group learning does not necessarily translate into organisational learning. Team or group learning is a process whereby a team or group chooses a certain course of action, acquires knowledge and reflects, based on the received feedback,

and ultimately adjusts in order to change or adapt, while organisational learning is about the ability of the organisation to adapt and change.

Again, it also transpired from the above mentioned study that sometimes groups or teams are unable to communicate with other groups in the same firm, a fact which has a negative effect on organisational learning, though the group learning was effective. Sometimes groups do communicate effectively but fail to convince other groups in the organisation to adopt new ways of doing things.

The study also revealed that there is a lack of psychological safety among group or team individuals, where they believe their jobs are at stake if they voice their views openly. This usually happens when organisational members perceive that management might victimise them or take criticism negatively if they speak out. In these instances it is difficult for teams to exhibit negative criticism or engage in the high-quality reflective discussions required to promote and assist learning.

The other observation derived from this study is that sometimes teams or groups may reflect very well but become unable to implement the changes in their teams due to a lack of resources or routine processes not followed correctly within the organisation.

Mets and Torokoff (2007) describe organisational learning as associated with the behaviour of an organisation as an individual. Furthermore, it has to do with the ability of the organisation to respond positively to environmental changes, both internal and external.

Nafukho (2008) notes that organisational learning is vital to public sector organisations like SANRAL. This is because it creates an enabling environment for the organisation to adapt to rapidly changing conditions and an uncertain climate. Furthermore, these types of environments exist when workers are exposed and encouraged to develop, allowed to think independently, to be creative and to be innovative.

Organisations like SANRAL must provide a platform for their staff to face the ever-changing future. Sabah and Orthner (2007) demonstrate that organisations need to be assessed with respect to capacity for organisational learning as well as the methodology to implement learning in organisations. They further note that the first step in the implementation of organisational learning is to assess the capacity and strengths of the organisation.

Sabah and Orthner identify two ways of assessing an organisation, namely the learning culture and a supported learning structure. The culture of the organisation can be explored in many ways, like the promotion of new ideas and innovation, safety, or being goal-minded, or addressing the nature of leadership. The promotion of new ideas and the sharing of information are described as innovation in an organisation, while safety refers to the encouragement of freedom of discussion. Goal-minded deals with promoting developmental goals and arranging how to accomplish them. Finally, the question of leadership is vital in organisational learning. Further discussion on leadership will take place later on in this chapter.

Sabah and Orthner also believe that the structural aspect of organisational learning deals with the mechanisms of learning, which facilitates the exchange of information and fosters the ability to learn as a collective. The assessment of the structure of the organisation is further analysed in terms of partnerships, planning, resources and the sharing of successes. Partnerships mean getting together in order to learn from each other. Planning means the people in the organisation setting measurable outputs and working towards achieving them. Resources deal with the provision of an infrastructure that promotes learning.

Sabah and Orthner believe that to comprehend the status of organisational learning in an organisation, it is helpful to identify areas of strength and areas of development. They further suggest a methodology for implementing organisational learning with seven steps to it. Step one is the identification of a learning question. This question should reflect on one of the issues that the organisation is faced with. Step two entails putting together or choosing a team that will endeavour to answer the question. Step three deals with the collation of existing information or knowledge from various sources in the organisation. Step four involves the proposal of a response to the question. That also includes a strategy (with all the instructions) that is workable. Step five involves the implementation of the strategy. Step six entails the feedback of the learning process and, finally, step seven involves identifying the next question. As said before, organisational learning entails continuous development, reflection, and looking for answers to new questions.

Mulford (2008) notes that the quality of leadership in organisational learning is essential. For any change to be successful the beliefs and core values of a leader are significant. The beliefs and core values of the leader combined with the capacities of the rest of the people in the organisation give rise to the development of a shared organisational vision. This results in obtaining good social outcomes through learning. Mulford further demonstrates that a leader should be transformational. This means that he/she needs to provide structural, cultural and

visionary support to the people. This results in good performance by the people in the organisation.

Common (2004) observes that political environments often influence organisational learning. This means that policies that are developed in organisations must encourage organisational learning. Organisations like SANRAL engage themselves in policy-making practises that promote learning. As a public sector organisation, SANRAL should be engaged in policy-making practices that are effective as learning processes.

Common further defines the result of enhancing public sector policy making as policy-learning, and says that the combination of policy learning and organisational learning enhances the capacity of policy-making in organisations This is thought not to be an easy exercise.

Common notes that there is a difference between private and public sector learning. The private sector is influenced by production-orientated policies while the public sector is more influenced by political motives. As said before, organisations can realise their learning potentials only when managers create an environment that is conducive to the development of individuals, teams or groups. Common maintains that the structure of the organisation should have systems and procedures that promote organisational learning.

Common argues that organisational learning demonstrates the ability of an organisation to learn as a collective, especially in the public sector. This is achieved by applying new ideas or knowledge in the implementation process. This results in the enhancement of the organisation's policy-making capacity. Stata (1996, cited by Common 2004 p. 37) argues that in order for organisations to learn effectively, people who make decisions must be able to learn together as well as to share their goals and beliefs. These decision makers should always be able to take actions that are necessary to bring about change.

The question of organisational learning in public organisations like SANRAL poses a challenge in that most public organisations are driven by political motives. Moreover, organisational learning requires change in organisational culture or values or operational procedures. As said above, group/team learning is imperative in organisational learning.

According to Edmondson (2000), learning is required in order to succeed in changing environments. This can be accomplished only by recognising what is needed for change,

implementing new ways of action, and evaluating new possibilities to achieve certain desired results.

Learning can also be defined as an iterative process of reflection and action, whereby action taken is analysed and, if necessary, modified to achieve the desired outcome. Learning in an organisation takes place through interactions and actions between members in smaller groups or teams. These actions are moved by both team-specific and organisational objectives.

2.3.2 The Organisational Learning Strategy

Reeves and Boreham (2006) demonstrate how to adopt organisational learning as a strategy to help to improve an organisation'sperformances, especially during rapidly changing times and under uncertain conditions.

Reeves and Boreham suggest that the strategy that an organisation adopts should entail some of the following actions:

- Building a shared vision among organisational members in order to enhance their needs and then of course accomplishing the desired outcomes.
- Improving or replacing the current management approach with one that encourages learning.
- Setting up structures or platforms where organisational members regularly meet, share their ideas, and reflect on their results.
- Regularly evaluating the strategy, encouraging continuous professional development (CPD) and continuing to develop effective procedures to promote learning.

Garvin (1993, cited by Broer and Rolton 1997 p.4) believes that there are five areas that organisations should be skilled at in order to manage learning properly:

Systematic problem solving: this entails using quality management methods as well as using data rather than assumptions when making decisions. Organisations should develop and collect data on managerial and other key performance indicators to monitor quality concerns. Organisations should conduct annual strategic planning workshops in order to collect data from other stakeholders as well as staff satisfaction surveys. This data should be analysed to determine organisational goals and future actions.

Experimentation with new approaches: this is the second activity identified by Garvin (1993 cited by Broer and Rolton 1997 p.4). It involves searching for and testing new knowledge systematically in the organisation. Experiments should be used in organisations to ascertain the underlying cause and effect of relationships. This allows groups in an organisation to understand how things are undertaken and why they happen.

Learning from past experiences: this is undertaken by systematically evaluating successes and failures. This normally leads to the possibility of organisations learning more about the vital steps needed for continual success. One of the useful methods of learning from past experiences is case reviews. This occurs where small staff teams, within or across professions in the organisation, objectively analyse their actions by identifying what is going well and what could have been done differently.

The other way of learning from past experiences is by documenting and analysing complaints and areas of improvement. Areas of improvement are cases in which organisational internal systems or processes have not functioned effectively, with poor results, but no formal or informal consequences.

The other way of learning from the experiences of staff is by conducting exit interviews and ongoing mentoring programs. Exit interviews provide people with a platform to air their views about what they learnt from the organisation and to make suggestions for improvement. The organisation's mentoring programme entails having senior experienced personnel coaching and supporting new and inexperienced staff.

Learning from the best practice of others: this is achieved by actively collating information from industry competitors, colleagues, etc. Organisations should arrange educational sessions for their staff to learn about what their colleagues are trying or struggling with and what has worked well for them. These sessions can be in the form of presentations, open discussions, etc. There are opportunities externally as well and this can be done by seconding staff to other professional organisations. By doing that, staff get the opportunity to learn new ideas or techniques from other organisations and also to share theirs.

Transferring knowledge quickly and efficiently throughout the organisation: this type of activity is imperative for organisations in order to ensure that learning is shared among organisational members. This usually takes the form of email updates, meetings, minutes, presentations, etc.

Organisations should arrange that the entire organisational team meets at least once in every six or twelve months for professional development and strategic planning. This provides an opportunity for everybody in the organisation to discuss issues as a whole group and to ensure that opinions of everyone in the organisation is taken into account when making strategic decisions and goals.

There are many techniques or approaches that organisations may use to advance organisational learning in an organisation. Some of them are training, teamwork that is effective, organisational development, employment, empowerment, etc. Some of these approaches are managerial, such as the provision of career paths that can assist in organisational learning, or through the provision of workgroups which will, from time to time, change the teams in order to exchange knowledge.

2.4   Systemic View of Learning Organisations

As said before, individuals learn in a learning organisation. In this context, individuals are connected to the organisation through a shared vision. Furthermore individuals are also connected to the organisation by a perception of the organisation as a whole, according to Senge (1990). Gharajedaghi (2006) describes systems thinking as a holistic language which will enable people to see the world as a whole - as a medium of seeing things. Systems thinking is the ability to see things as a whole, as well as to see their interrelationships.

It is in this context that learning organisations need to be viewed from a systemic approach. Organisations like SANRAL need to choose a particular systemic approach in order to develop their own organisation. For the sake of this study no particular systemic methodology will be chosen. However, definitions of various systems methodologies and the differences between them will be briefly discussed later on in the study.

It must be remembered that the theme of this dissertation is the enhancement of organisational performance by transforming organisations like SANRAL into learning organisations. It is essential that SANRAL changes or improves in accordance with the changes that take place in the marketplace or surrounding environment. Senge (1990) describes systems thinking as a response to the need for workable means of viewing and acting within an organisation or society.

Gharajedaghi (2006) believes that organisations used recently to rely on the so-called mechanistic thinking (also called reductionism). This basically means that events or objects as well as their properties can be understood in terms of their ultimate results. In other words organisations used to behave or be treated like machines. Gharajedaghi describes this as a linear cause and effect way of behaving. As the world continued to change, this type of behaviour became ineffective in organisations - hence the introduction of systems thinking. Roslee (2006) is of the opinion that mechanistic thinking takes into consideration only the parts of the organisation while systems thinking considers both the parts and the whole in an organisation. This is a very important and critical distinction between the two.

Systems thinking offers a better way of systematically organising the world in order to make sense of the dynamics that exist in the organisations. Senge (1990) refers to systems thinking as the interrelatedness and interconnectivity of patterns within organisations. He emphasises the significance of feedback processes in the system. This is obviously the opposite of mechanistic thinking, where organisations were understood in terms of their different parts. Systems thinking requires that organisations be viewed as a whole and therefore to be treated as such. Roslee (2006) argues that feedback systems do give rise to unintended and intended consequences and are related to one another. These consequences are called emergent properties, according to Gharajedaghi (2006).

In many instances systems create their own crisis, not external forces or people outside the system. This means that people often possess the power to alter the structure of a system within which they are operating.

Gharajedaghi argues that a shift of paradigm is something that happens when people have mental models that seek a solution for a particular problem in a system, and goes on to suggest that when the organisation is in a state of becoming interdependent, its parts behave as independent elements. In this context the parts may be the individuals within the organisation. Gharajedaghi describes this scenario as chaos in an organisation and, in order to deal with it, requires a dual shift in paradigm. Thus the interdependence of organisational parts is called holistic thinking while their independence is called analytical thinking, which occurs when the organisation's parts develop a tendency to behave independently.

Gharajedaghi describes the first paradigm shift as the one that enables us to see the organisation not as a mindless mechanical tool but first as a biological being that is uni-minded and, finally as a multi-minded socio-cultural organization. A mindless

system is an organisation with no purpose of its own, which functions reactively and is effective only when its environment has little effect on it. Uni-minded systems are living systems like human beings. In these systems, growth is the measure of success. Multi-minded systems, in the socio-cultural view, are purposeful systems with the organisation being part of the whole, the society.

Shifts of paradigm can happen in two stages, namely a change in the nature of reality or a change in the inquiry method. When the organisation's parts behave independently the organisation as a whole becomes more and more interdependent, according to Gharajedaghi. The result of this behaviour is a dual shift of paradigm.

Gharajedaghi starts his analysis of systems thinking by first looking at the history of great nations or powers that have risen and fallen in the past. In other words, there needs to be an understanding of why success is converted to failure and what the underlying forces are.

The second paradigm shift enables us to see an organisation preoccupied with independent variables. In this case the impact caused by each variable is analysed independently. This kind of systems thinking is called analytical thinking. There are properties in a system that do not emerge in analytical thinking, such as happiness, love, success, etc. These are called emergent properties. For these properties to emerge, the variables need to function interdependently.

An example demonstrating the interdependence of variables was when SAB, in the1990s, was excelling in sales of the Castle Lager beer. They promoted Castle Lager beer only, as the best brewed beer, and had a target of selling certain quantities or volumes a year.

This was bad practice as SAB was producing various kinds of beers. They reached the target sooner than expected and after some time the sales started to decline. It later emerged that there was another competitor in the market, Namibian Breweries, that was growing fast. According to the Marketing Executive of SAB, they realised that they needed to embark on a holistic view of the firm and to change the strategy.

At the same time SAB had other beer brands that were consistently doing well in the market. For some reasons and because these other brands were being produced by other SAB subsidiaries they saw no reason to build working relationships with them. They saw them only as competitors.

After realising that Namibian breweries was fast becoming a force to be reckoned with, the SAB management decided to establish a working relationship with its subsidiaries. This paid dividends as new interrelationships were established and new strategies introduced. Sales started to rise again with all of the different brands of beers selling very fast. This was proof of the fact that all of the agents that participate in the growth of an organisation have to work together.

The interdependence of different parts of the system is one of the properties of a learning organisation. It follows that for an organisation to successfully transform into a learning organisation a systemic approach needs to be adopted. This means that the organisational strategy needs to focus on the interrelationships of various players in the organisation. This becomes very important for organisations like SANRAL, which still want to be a force to be reckoned with in South African industry.

A study by Ackoff (1974, cited by Gharajedaghi 2006 p. 23) shows that purposeful social systems are capable of creating and recreating their future. This means that they are able to redesign themselves. Churchman (1971, cited by Gharajedaghi 2006 p. 23) demonstrates that one of the best methods to learn a system is to design it. This lead to Ackoff and Gharajedaghi's using design as the main driver of social development. The improvement of the capacity to choose is called development, and design is the vehicle to do this improvement.

Gharajedaghi states that there should be an awareness of how the activities of one section of a system affect and are affected by other sections. This means that an understanding of the nature of interactions among the system's parts is a requirement for this awareness. In his research Gharadejaghi demonstrates that the interactive management model illustrated in Fig 2 below captures the basis of the above model, and is a roadmap that may be followed. Unfortunately this research will not fully explore this model. Only certain concepts will be discussed in this study, because of their relevance.
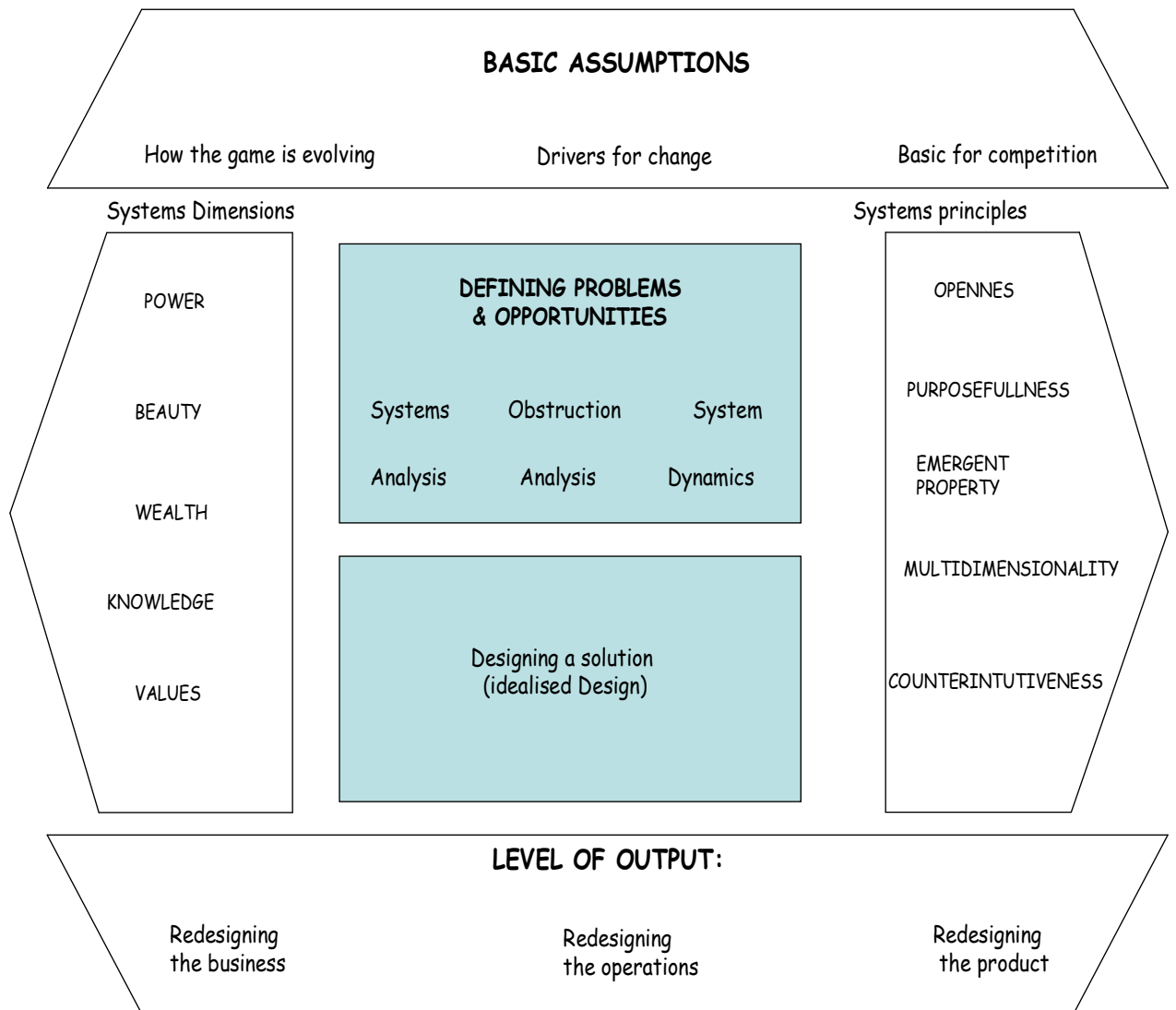
Figure 2.1 Interactive Management Model (Source: Gharajedaghi, 2006: p.23)

Gharadejaghi argues that organisational processes are some of the important aspects of systems thinking in a learning organisation.

2.4.1 Organisational Processes

According to Gharajedaghi there are five systems dimensions that constitute organisational processes, namely throughput, decision-making, learning and control, membership and conflict management.

Throughput is the process of generating and spreading wealth. To design a throughput system we need to know the state of the art and how active variables interface, we need to value the

dynamics of the system, to be able to handle the interdependence between the variables and system constraints, and to have an operational knowledge of the system.

On the other hand, decision-making in an organization is about the sharing of decision criteria, not giving up the responsibility of power. Decentralisation and centralisation are two concepts that work together when it comes to decision-making in an organisation. Centralisation deals with the interest of the system as a whole, while decentralisation deals with the interest of the system's parts.

An example to demonstrate this concept occurred when one of our divisional managers was giving instructions and said that everyone would be judged on the results of the project. Whenever people tried to share ideas with him, he would ignore them. Sometimes he would come back to check the work and it could be seen that he was not impressed. Everyone became frustrated and, at this point, people asked to be transferred to other departments in order to avoid him. Eventually this manager decided to leave the organisation.

A new divisional manager was appointed, and he adopted the same style of leadership, except that he would always tell people that his decision was the best. After some time it was found that when an alternate decision was proposed to him he would entertain it, and the people felt empowered as a result.

Decision criteria can be categorised into policies and procedures. A policy is a decision criterion at a higher level of order and deals with choices of dimensions. As Gharajedaghi says, policy decisions are value-laden choices that should be explicit about their implications for the human, financial and technical domains. Procedures are derived from policies. They should specify the method to be used when applying policies to specific situations.

A good example of policies and procedures is the new Supply Chain Management that was launched by Government two years ago. The implementation of this policy was started last year by all government departments after parliament approved it. At SANRAL, we were assigned to draw up our own implementation procedures. A process of consultation was then initiated which involved all line departments.

After all of the data had been scrutinised a final draft was submitted to the Board of Directors to approve, which was done. Then all of the line departments were instructed to use the approved SANRAL procedures. This showed how procedures are derived from policies. This means that each organisation should have its own procedures based on national policies. As

the procedures address the "how" questions they should specify the methods or models to be followed when implementing policy.

Learning and control is the other side of decision-making. Learning takes place as a result of being able to identify a mistake or detect a mismatch between what was expected to transpire and what actually transpired. People learn by avoiding making the same errors.

A learning system would be effective if it could have an early warning signal that requires corrective or preventive action before the actual error or problem occurs.

In most organisations, having checklists of all of the systems helps to detect errors and gives more control. This means that learning leads to control. In order to manage a multi-minded system there is a need for a new approach, which Gharajedaghi (2006) names social calculus. This approach should be able to provide horizontal, vertical and temporal compatibility among the individuals or members of an organisation. Vertical being the extent of the between members at different organisation levels while horizontal is concerned with members at the same organisation levels compatibility. Lastly, temporal deals with the past, present and future members of the organisation.

Gharajedaghi (2006) describes social systems as being significant in a learning organisation. As already said, what characterises a system is not the individuals in it but their interactions/relationships with one another. These interactions/relationships indicate the structure of a system and the nature of the bond between the parts. The difference between mechanical systems and socio-cultural systems is clear, according to Gharajedaghi. The former are energy bonded while the latter are kept together by information. In order to understand how social systems are kept together by information we need to understand the concepts of culture and social learning.

Culture can be transformed or reproduced even if it pre-exists for individuals. It is here that challenges and key obstacles are encountered and the desire of people to change. In everyday lives culture can be viewed as giving a chance for development, as well as for people to transform and redesign their future.

As alluded to before, when an organisation is subjected to a particular culture for a long time it can sometimes develop resistance to changing it. A typical example was when SANRAL was undergoing restructuring and transformation. Most departments were experiencing

problems with the members of their staff failing to understand why things had to change all of a sudden.

SANRAL was experiencing situations where certain staff members would refuse to report to new managers because of their colour or culture or race. Others would refuse to be transferred to a new department because there was fear of new challenges. SANRAL had to introduce new strategies by organising training methods for their staff to get them mentally and socially prepared for these changes of culture.

When people had been working for certain departments for more than 20 years and all of a sudden they were told that the department would cease to exist from a certain date and a new one would be in place with a new management, they felt that their traditional norms were under threat. Resistance to change and the fear of rejection arise from threats to traditional norms and ways of doing things.

Most people, especially the older members of the organisation, failed to understand that this was a chance for them to transform and recreate their future. It is always difficult for older members or employees of any organisation to embrace or accept change easily. This is because they have been used to doing things in a particular manner for a long time. This posed a big challenge for SANRAL, and it was necessary to try to address the situation. It was clear that there was no shared image of the future of the organisation and what it should look like. SANRAL then decided to embark on the processes of preparing their staff for change. This entailed creating platforms for debates, employee consultative forums, workshops, training, etc. It then became clear that there was a need for a change in the organisation's culture.

It became evident that SANRAL needed to introduce systems that would foster the process of learning immediately.. It was also clear that the processes of team learning, shared vision, and change in mental models would have to be realised and implemented in order to change the current culture of the organisation for the better. After participative debates, training and consultation, people started to change their attitudes and saw the need for change. In other words, the benefits of creating a learning culture were realised in SANRAL.

According to Gharajedaghi (2006), culture can be transformed and reproduced by the individuals' purposeful actions in an organisation. It is at this stage that key obstacles and opportunities exist for people in the organisation to transform their culture and re-invent their desired futures.

Under normal operations in an organisation cultures sometimes act as default decision systems. This means that if people in an organisation do not decide where or who they want to be, culture will decide for them. This refers to the existing culture that the organisation has been practising for some time. This was exactly the situation at SANRAL for those who were ignoring the change in the system. People tend to forget that they have a choice in an organisation and that they are capable of redesigning the system. But if no one is prepared to challenge any underlying assumptions in an organisation, the existing default situation remains unchallenged.

As mentioned before, social learning happens when people in an organisation share the same vision and culture. It enables people to share knowledge of the organisation. Once the members of an organisation are able to share knowledge and culture they develop the ability to transform and redesign their futures. Learning organisations are capable of reaching higher levels of order and complexity through shared vision.

Looking at the example above, cultural transformation gave the members of the SANRAL staff an opportunity to share knowledge of the organisation. This leads us to the discussion of various systems approaches that are available for an organisation like SANRAL to adopt, either singly or in combination, in order to enhance its organisational performance.

2.4.2   Systems Methodologies

This section tries to briefly define some of the systems methodologies that have been explored by many systems authors and the significant attempts that have been made to adopt a holistic approach in enhancing performance in organisations like SANRAL. Jackson (2003) believes in the use of a combination of different approaches in order to achieve the maximum benefit of an innovative holism. These are some of the most useful holistic approaches to management.

Jackson (2003) describes ten different systems methodologies and why they are all significant for managers to adopt, singly or in combination, in order to deal with issues of diversity, change, complexity, etc. Jackson categorises these systems approaches into four types, namely type A, called Improving Goal Seeking and Viability, type B, called Exploring Purposes, type C, called Ensuring Fairness, and type D, called Promoting Diversity.

Jackson describes the four systems approaches that are associated with Goal Seeking Viability as hard systems thinking, systems dynamics, organisational cybernetics and complexity theory. These approaches differ, of course, from one another in the manner in which they seek to acquire their goals and how they deal with complexity. Checkland (1981, cited by Jackson 2003 p. 47) identifies hard systems thinking as a suitable tool to use in addressing real-world problems. As reductionism is found not to be the answer by many systems theorists, holism seems to address most of the socio-technical problems faced by many managers in organisations.

The origin of hard systems thinking can be traced back to World War II as the system that was adopted by military scientists to help military leaders in dealing with new radar technology in the British army. It was then that hard systems thinking was defined as an interdisciplinary approach that seeks to identify real world problems and produce solutions. This meant that the solutions produced by scientific professionals had to work in the real world environment rather than in the laboratory only.

The advantage of the hard systems thinking approach is that managers are able to benefit from scientific expertise in dealing with important operational problems that they face on a daily basis. Furthermore, the hard systems thinking approach insists on holism instead of reductionism in solving real-world problems. Of course, this helps managers of organisations to find integrated and comprehensive solutions to their problems. Such a systematic methodology presents advantages over the ad hoc approach based on common sense that managers sometimes use.

The next systems approach, according to Jackson, is system dynamics, which is a methodology that is based on seeing structures or deeper patterns that are behind complex and non-linear situations. Senge (1990) believes the promotion of system dynamics leads to the creation of learning organisations. They rely to a large extent on feedback processes. This means that the structure of the system is constituted by the systemic actions of the interrelationships of feedback loops (negative and/or positive. Further discussion on feedback processes will take place in following section.

It is important to note that, in system dynamics, learning is a significant element and is encouraged at all times, according to Forrester (1956, cited by Jackson 2003 p. 67). This means that managers that learn about how complex systems work could easily respond and act on them to bring about enhancement. It is therefore helpful for managers to look beyond the mess that is presented on the surface and comprehend the underlying feedback processes.

The understanding of the interactions of feedback loops by managers assists them in dealing with their work. This means that they become more aware of the unintended consequences of the system as well as able to treat causes instead of symptoms. It is better to have to make small interventions than to wait for big problems to manifest.

Jackson argues that the primary objective of system dynamics is to provide managers with a comprehension of the complex systems structure so that they can better deal with the system in such a way as to ensure that it manifests behaviour that fits in with the desired goals. Senge (1990) regards system dynamics as the best approach or tool in the creation of learning organisations.

Another systems approach, according to Jackson, is organisational cybernetics. He defines cybernetics as the science of machines' and animals' communication and control. But the most interesting work on organisational cybernetics is that which was performed by Stafford Beer. He was determined to challenge the perception that exists in most organisations that the person at the top is the one that can think and makes decisions for the whole company. In fact Stafford Beer argues that for any one person to be able to have the capacity to take responsibility for every decision in a company he or she would need brains that weigh almost a ton of bricks.

Based on the foregoing Stafford Beer then redefines organisational cybernetics as the science of effective organisation and calls this more accurate and useful model a viable system model (VSM). According to Jackson, Beer's organisational cybernetics takes the form of a structure, like system dynamics. Unlike in system dynamics where the relationships of feedback processes at the underlying structural level give rise to system behaviour, organisational cybernetics is governed by cybernetic laws and principles that operate below the surface. Therefore the introduction of VSM by Beer is an endeavour to demonstrate, as simply as possible, the operation of cybernetic laws in complex systems.

One of the significant findings of organisational cybernetics is that complex systems possess a recursive feature. This simply means that systems in organisations exist in hierarchical form and the organisational arrangement at higher level can also be found at other levels of the system. This results in all viable system levels exhibiting the same organisational characteristics. Because of the foregoing characteristics of the viable system model, it allows managers to assumea lesser role with regards to monitoring everything in the organisation. In other words, by using the VSM, sub-systems become the focus of interest in their own right, and require little monitoring attention from above.

The VSM, according to Jackson, consists of five elements (five systems), namely implementation, co-ordination, operational control, development and policy. The detailed functioning and interrelationship among these systems will not be discussed in this study. As cybernetics dictates, the functions of these five elements should be performed by all of the systems in order to remain viable.

According to Jackson, one of the benefits of the VSM is that it can save a lot of pressure on managers and thereby improve their performance and that of the organisation. It also offers a lot of understanding of the organisational complexity so that a platform of discussing issues like co-ordination, decentralisation, centralisation of certain responsibilities, etc is created. This, of course, provides an opportunity for parts of the system to have autonomy and be empowered without strict managerial control. This again makes freedom and control in the system complement each other rather than competing or opposing each other. The other advantage of VSM is that it spreads decision-making and control throughout the system while at the same time leadership prevails at all levels of the system, according to Jackson.

The last type-A systems approach, according to Jackson (2003), is the complexity theory. Complexity theory is a system where aspects like disorder, randomness and irregularity are bothering a lot of managers in organisations. Instability, change and unpredictability are acceptable in this system, in which appropriate advice on actions to be taken is offered.

Jackson argues that in complex systems prediction becomes almost impossible, as was proved by scientists like Edward Lorenz in his study of long-range weather forecasting. During a repeat of his computer simulation program in determining tweather conditions it turned out that the second run was different from the initial one. The same happened in the subsequent runs. This was of course proof that in social systems where non-linear relationships occur prediction of long-term behaviour is difficult but patterns that emerge from such behaviour can be understood. This is, according to Jackson, sometimes called chaos. He defines chaos as the order that exist within disorder.

Jackson explains the difference between chaos and complex theories by saying that in chaos theory the behaviour is non-linear, as in natural systems like the weather system, while in complex theory the behaviour happens over time in both natural and social systems. Jackson (2003) further explains that social systems are not controlled by fixed rules governing the interaction of their parts, as in complex adaptive systems, but rather evolve over time as they change their rules. Hence they are called complex evolving systems.

According to Jackson the parts of the system can be comprehended with respect to their relationship with each other and with the whole. This, of course, means that the parts' relationships are significant and their patterns determine what a system will do. As said before, order is an emergent result or property that is a consequence of disorder, though self-organising processes that operate inside the system. Jackson calls the zone between order and chaos the edge of chaos. This is exactly where emergent properties surface as a result of self-organisation.

In summary, complexity theory dictates that managers should accept that the future of their organisations is not known, and one of the characteristics of these organisations together with their environments is the non-linear feedback loops. This, of course, makes long-term planning almost impossible. Managers are therefore advised to accept that the absence of strict controls or hierarchy does not necessarily lead to things falling apart, according to Jackson. This means that managers should allow organisations to evolve and should have trust in chaos. Ultimately, this alleviates the burden of trying to control, plan and organise everything for the organisation.

While managers cannot control or predict the future of their organisations they can create an environment for learning and self-organisation which leads to emergence of new mental models, argues Jackson. This is very important for managers to understand, as it helps them to ensure flexibility in their organisations. This entails encouraging learning throughout the organisation. As it is evident in the foregoing discussion that the emphasis is on holism, emergence, relationships and interdependency, it is therefore clear that complexity theory is a systems approach.

The next category of systems approaches is type B, exploring purposes, according to Jackson. There are three systems approaches that are categorised under this type, namely Strategic Assumption Surfacing and Testing (SAST), Interactive Planning and Soft Systems Methodology (SSM).

Mason and Mitroff (1981, cited by Jackson 2003 p.137) conclude that most systems methodologies can deal only with relatively simple problems. This then becomes a problem for managers, as they are faced with planning, policy and decision-making that are made of interdependent and messy problems. A systems approach called Strategic Assumption Surfacing and Testing (SAST) was designed to deal with these messes. Jackson says that they are sometimes called wicked problems. SAST is a systems methodology designed to be

employed when managers or organisations are faced with wicked problems. These problems are so complicated that managers can end up solving the wrong one if the problem is badly formulated.

Jackson describes SAST as a systems approach that demonstrates that systems thinking can be adapted to deal with stakeholder objectives of higher order synthesis. He further argues that SAST methodology encourages a participative style of management. This is achieved by the large involvement of stakeholders, who contribute a broad spectrum of opinions. Arguably, the best and most creative debate happens when there is a strong opposition.

The next type B systems methodology is interactive planning. This is a systems methodology also designed to deal with messes. These messes arise due to the increased complexity, diversity and change that managers have to deal with every day.

Ackoff (1981, cited by Jackson 2003 p. 158) describes interactive planning as an all-encompassing approach, calling it a social systems science. Like SAST, it is specifically designed to cope with messes that are consequences of increased complexity. \here, too, planning and design are based on broad participation and the involvement of various stakeholders.

There are three principles that form the basis of interactive planning methodology, namely participation, continuity and holism, according to Jackson. The participative principle requires the involvement of all stakeholders in the various stages or phases of the planning process. The involvement of all members of the organisation in the planning processes helps them to realise the importance of their contribution towards the success of the organisation. Continuity means that there is change in the values of the organisations as well as the occurrence of unexpected events. This necessitates that the organisation's plans be constantly revised at all times. The last one is the holistic principle. This implies the significance of the interactions of the parts of the system together with their interdependence.

The third type B systems approach is the Soft Systems Methodology (SSM). This approach was founded by a chemist by the name of Peter Checkland in his research of spectroscopy at Oxford University more than 15 years ago, according to Jackson. It is a methodology of setting out principles that enable interventions in problem situations that are ill-structured. The SSM has been a successful contributor to the revolution brought about by soft systems thinking, having led to the advancement of systems thinking from something fairly straightforward a more complex tool with greater relevance to managers. This, of course, is

the reason why it is widely used by academics and practitioners nowadays, especially in the field of information systems.

Jackson argues that organisations that have no agreed objectives and goals or hierarchy of systems to be designed run the risk of distorting problem situations or jumping to conclusions prematurely. An analysis performed in terms of the soft systems approach entails the construction of rich pictures to present the problem situation. This helps to avoid capturing the problem situation in systems models. Jackson thinks that the development of a range of systems that are relevant in improving the problem situation leads to the construction of numerous models, each representing a different real world-view. Jackson sometimes names these systems 'root definitions'. This is different from hard systems as they use one model as a whole.

A seven-stage cycle of the SSM is widely used nowadays, as illustrated in figure 2.2 below.
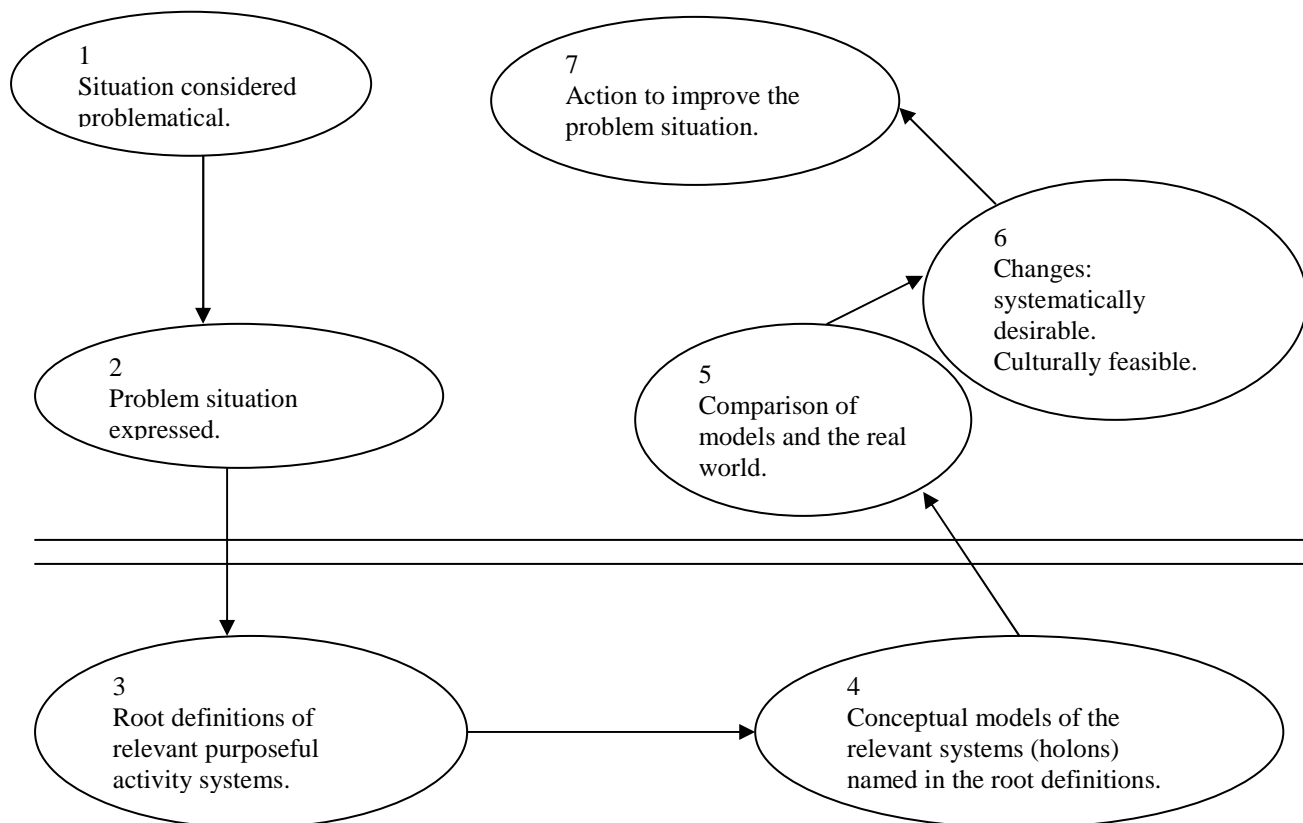
Figure 2.2 The learning cycle of Soft Systems Methodology (SSM) (Source: Jackson, 2003: p.187)

The details of each stage will not be discussed in this study. One of the advantages of the SSM is that it does not require the clear establishment of goals before the solution to the

problem can commence. In other words it maps the problem by considering it as a 'mess', and articulates a learning system that challenges prevailing ways of doing and seeing things.

The next category is type C, also known as Ensuring Fairness. There are two systems approaches under this category, namely critical systems heuristics and team syntegrity. According to Jackson (2003), these systems are developed to address the failure of interpretive systems approaches to give appropriate attention to an effective participation of stakeholders in decision making, as well as addressing the concerns of the disadvantaged groups within the organisation. They both emphasise the significance of empowering those that are treated in a discriminatory manner in order to feel part of the organisation and understand their rights.

Critical systems heuristics, says Jackson, is a systems approach that counter-acts the unfairness of mainstream society to certain groups, and ensures that they have a role to play in the organisation. It is an approach that is emancipatory and can ensure that a critical dimension is included in planning and decision making. It enables the designs from other systems approaches, whether soft or hard, to be interrogated in order to expose the ownership of the interests they serve.

On the other hand, team syntegrity involves a sequence of procedures and theory that facilitates participative, non-hierarchical decision making by a group of people that share the same interests, knowledge and experience in the organisation. Organisations that practise democracy in their formations benefit from this systems approach, but the commitment of various stakeholders must be acquired. In summary it promotes fairness within the organisation.

The last category, according to Jackson, is type D, which is called Promoting Diversity. The systems approach here is called post-modern systems thinking. This systems approach is designed to help managers to enhance diversity in their organisations. It promotes a sense of fun in the organisation by paying attention to people's emotions, and he significance of encouraging creativity and diversity is recognised in maximising learning.

In conclusion, no specific systems methodology has been adopted in this study. The reason for that is that the researcher wants to engage the effect of the systems thinking theory in general and its advantages in enhancing performance in learning organisations. The purpose of the above discussion is therefore to demonstrate or highlight that there is a variety of systems methodologies available that can be adopted or used to advance learning organisation

principles. Furthermore, systems thinking is about the formation of a learning organisation as an innovative way of addressing the rapidly changing environments, according to Senge (1990).

2.5   Feedback Processes

The complexity of the systems in which we live is growing in the modern world. As complexity increases, so do the unpredicted side effects caused by human action, producing further complexity in a vicious circle. Most people who have gone through systems thinking literature ask for the advancement of systems thinking to enhance the ability to manage our organisations better. Again this is possible only if our organisations become learning ones.

Sterman (1994) describes learning as a process of feedback in which decisions made may change depending on the way the world is viewed. Under normal circumstances the feedback information is received and, using the same information a decision is made.

Unfortunately, in the real world there will always be obstructions and counter forces that will slow down or prevent the processes of learning feedback from functioning. Some of the barriers to learning include the complexity of the systems themselves, insufficient information feedback, misperceptions, and poor interpersonal and organisational skills. In order to enhance learning, according to Sterman, the above impediments must be addressed.

The challenge facing most organisations is how to move from generalising the acceleration of learning and systems thinking to processes and ways that could assist organisations to have a better comprehension of complexity, in order to be able to create or formulate better policies and then guide the organisation through continuous learning.

Learning in complex dynamic systems or about complex dynamic systems is difficult because one must, at the same time, be the driver of the process. This leads to problems surfacing and derailing the feedback processes required for learning to occur. These are sometimes called feedback loops. Sterman describes learning as a single or double loop process.

Single loop learning occurs when people's mental models remain unchanged. This is the process in which people learn to achieve certain goals in relation to existing or current mental models. Sterman explains that single loop learning does not produce a substantial change in

people's comprehension of the system's structure or their mental models. In other words it does not change people's view of the world.

Double loop learning is defined as the feedback information received about the real world which changes not only people's decisions within the context of existing thinking, but also reports back to change people's mental models. This leads to different decisionary rules being created as people's mental models change. This further results in the strategy and structure of the organisation being changed. It is on this basis that Sterman regards the systems thinking development as double loop learning.

The two different types of feedback loop are negative (balancing) and positive (reinforcing) feedback loops. According to Sterman (1994), a negative feedback is a process where people that make decisions compare information about the current state in the real world to various perceived goals, make perceptions about discrepancies between the actual and desired results, and take action. Then the real world will move towards the desired state. This is different from a positive feedback process where deviations to a goal or desired state are amplified, thus making the situation worse.

An example of this would be when a central heating system fitted with a thermostat monitors the heat of an office room, against some desired temperature, and uses the information that the temperature is too low or high to switch the system off or on. Figure 3 below illustrates a negative feedback system.
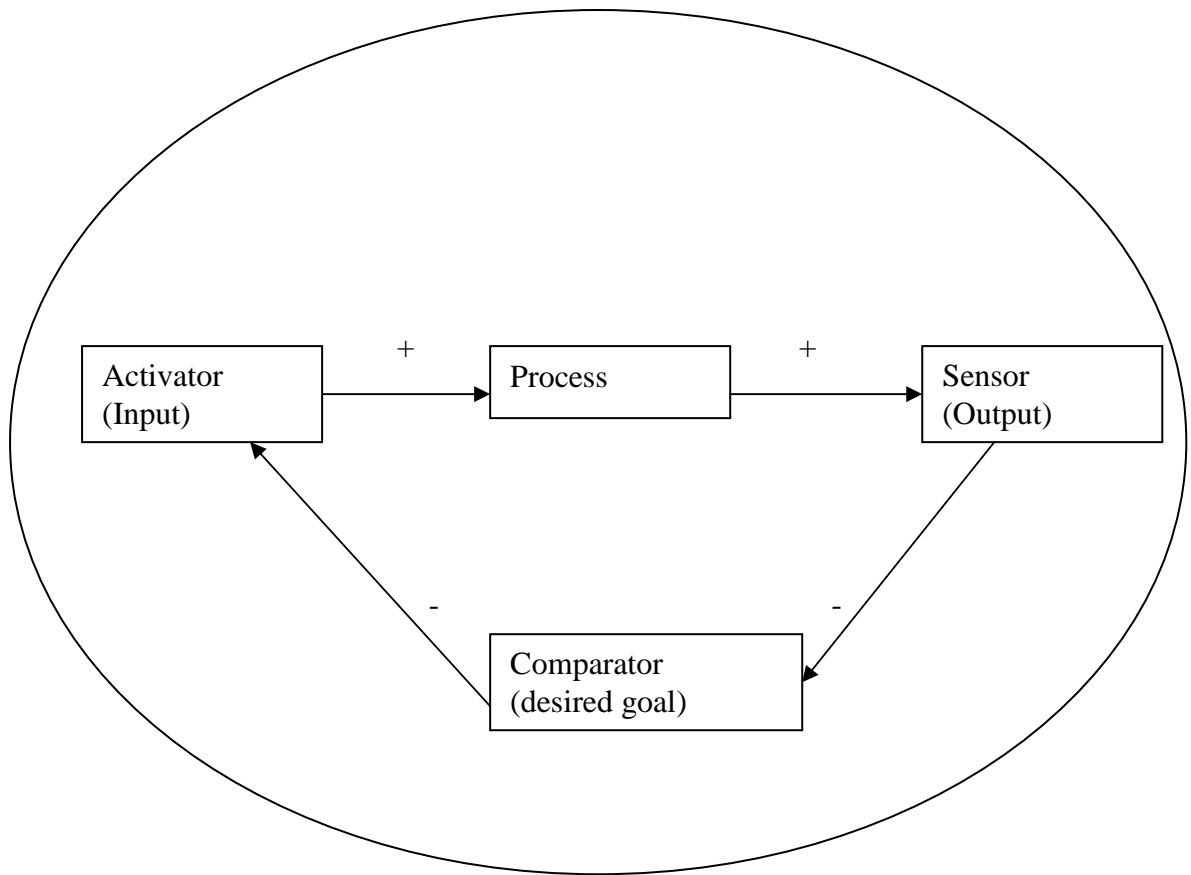
Figure 2.3 Negative Feedback System (Source: Jackson 2003: p.8)

Positive (reinforcing) feedback system processes are the drivers of growth. This can either be accelerating growth or accelerating decline. When there is growth in a situation, reinforcing feedback processes are working.

The systems thinking development is a double-loop learning process in which the world's short-term view is replaced by a broad, holistic, dynamic and long-term view. This, of course, leads to redesigning organisational policies.

A typical example of this process is where a new product is launched in a company and all of a sudden sales pick up, thus requiring an increase in production. Due to the increase in production, quality is compromised (decrease) and then of course the bad reputation spreads. On the other hand, when sales increase there is a corresponding increase in revenue and finally advertising increases as well. Figure 4 below is an illustration of the above example - a double loop process.
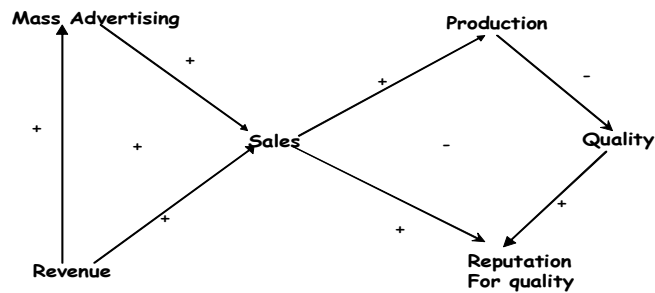
Figure 2.4 A Signed Digraph: a new product launch (Source: Jackson 2003: p.71)

According to Sterman (1994), in the real world these links between the loops often fail for various reasons, namely, dynamic complexity, imperfect information about the state of the real world , poor reasoning skills, implementation failure, misperceptions of feedback, etc. Or connections in the feedback loops may be removed or weakened by various factors.

Effective learning sometimes does not happen when feedback processes no longer work. This normally happens when balancing or negative feedback processes, which were at some stage responsible for influencing and controlling the organisation's behaviour, cannot achieve the desired results any longer. This leads to failure in the attempts to enhance or change the performance and production of the organisation. This may, of course, result in managers resorting to major interventions to radically change the situation.

When these major interventions fail, it means that the organisation is undergoing an ineffective re-structuring. Over-reliance on past experiences of balancing feedback processes is one of the contributing reasons of such failures. It should be noted that in environments that are turbulent, the whole system could perhaps be undergoing change, which makes it impossible to refer to past experiences. New patterns of behaviour begin to emerge under these situations, perhaps as a result of new reinforcing feedback processes.

2.6   Strategic Leadership and Learning

Nafukho (2008) notes that most organisations, both private and public, exist in environments where the rate of change is enormous, resulting in the need to respond to these external

forces. Leadership was identified as the key to organisational commitment, performance, etc . There is a similar situation at SANRAL, where the operation of the organisation depends on leadership. This means that leadership will determine the vision, success and goals of SANRAL.

Nafukho (2008) notes that there is a difference between leadership and management. Leadership is the process of putting forward visions and the values of the organisation. This means creating an enabling environment within which certain objectives can be achieved. Nafukho (2008) further describes leadership as a process where groups of people or individuals are influenced in order to accomplish a common objective. In the case of organisations like SANRAL both the leaders and the staff need each other in order for the process to be a success.

Leadership focuses on three significant areas, namely the establishment of a direction, the alignment of people, and motivating and inspiring the people in an organisation, according to Nafukho. The establishment of a direction entails realising a vision in an organisation that is developed in certain goals as well as the required strategies to accomplish that vision. The alignment of people means reaching out to all of the people in the organisation so that the vision is well articulated. The areas of motivation and inspiration involve encouraging people in the organisation to realise their vision.

Nafukho calls the organisation of financial, human, material, etc resources to work properly together in an organisation to attain its goals management, and describes management as the achievement of specific organisational goals such as human resource planning, organising, giving direction, and controlling all the other resources that exist in an organisation.

Nafukho concludes that there are three areas that characterise management, namely budgeting and planning, the provision of human resources and organising, and problem-solving and controlling. Budgeting and planning is about getting managers to programme work with respect to time, and cost management in order to accomplish desired results. Human resourcing and organising entails executing the plans and monitoring the implementation of that plans. Lastly, problem-solving and controlling involves the monitoring of the planned execution and providing corrective measures for any deviations that may arise.

 Hambrick & Mason (1984, cited by Vera and Crossman 2004 p. 2) argue that managers at the top are critical to the company's outcomes because they are empowered to make decisions and, in the end, they are accountable for whatever takes place within the company.

Vera and Crossman thought that there was a gap in the literature between strategic leadership and learning in organisations. This initiated their research into integrating the two processes. This involved taking an explicit look at the systems and different levels of learning in organisations to define how strategic planners influence each of the elements of the learning system.

Strategic leadership is about the application as well as the provision of strategic direction to the organisation by top management. There are clear distinctions between the functions of middle and top management. This means, therefore, that strategic leadership is the responsibility of management at the top. Vera and Crossman describe organisational learning as a change process by both individuals and groups shared in an organisation.

It is therefore important to identify each manager by the leadership style he/she adopts. According to Vera and Crossman (2004), there are two leadership styles that most managers use, namely transactional and transformational. Transactional leadership motivates individuals through different forms with the most notable one being the recognition and reward scheme. The organisation's leadership will set goals for the organisation as well as guidelines of how the members of the organisation will be rewarded for their efforts, diligence and commitment. Transactional leaders are also required to provide regular feedback to keep everyone abreast of developments. This helps to enhance and strengthen the organisational culture.

Transformational leaders are inspirational and very considerate. These leaders influence organisational members to sacrifice themselves for the sake of the organisation. They possess vision and thus generate excitement among organisational members.

Vera and Crossman argue that managing learning in organisations sometimes requires top executives to apply both transactional and transformational leadership styles. Transformational leadership is best suited to situations where it requires a change to the existing order of institutionalised learning. Institutionalised learning, according to Vera and Crossman, occurs when learning in an organisation is filtered through its systems, structures, routines, practices, etc.

Every organisation faces the challenges of both change and stability and therefore there is a need for both transactional and transformational leadership styles. According to Vera and Crossman (2004), transformational leadership builds on transactional leadership, especially

when it comes to recognition and rewards incentives. In other words, managing organisational learning requires senior management to be both transactional and transformational.

Ireland and Hitt (2005) describe strategic leadership as a person's ability to envisage, maintain flexibility, think strategically, and work with other members to start changes that will provide a viable future

It is therefore suggested that knowledge and new ideas need to be shared so that more new ideas and knowledge are generated. A lot of organisations struggle to get this process going as they think learning is only about providing training. However, it is also about understanding interconnectivity, interdependence, coherence and self organisation. These characteristics contribute to the growth, sustainability and survival of the firm, especially in fast changing environments or social ecosystems.

By understanding industries and organisations as learning organisations, leaders can enhance decision-making and search for creative solutions. If organisations are viewed as learning organisations, this has implications for decision-making. For instance, long-term forecasting will almost always be impossible, and dramatic changes can happen unexpectedly. As a consequence, adaptability and flexibility are essential.

Managers can influence the perceptions and actions of the remaining members of the organisation by actively guiding them in language choices. Leaders' effectiveness relies entirely on their ability to make an activity interesting and challenging for those they lead. They do this by giving others a sense of comprehending what they are doing, without changing their behaviour. From the above arguments, it is evident that there is no one theory of complexity, but many which manifest from various natural sciences studying complex systems.

Behaviours associated with complex adaptive systems are sometimes referred to as complex evolving systems. According to Mitleton-Kelly (2003) there are ten principles of complex evolving systems which characterise them. Some of these principles have been defined above. In most instances, if not all, the behaviour of complexity emanates from the inter-relationship, interaction and inter-connectivity of systems' elements as well as between a system and its environment.

Connectivity and interdependence mean that a decision or action by one individual, be it a group or organisation, may affect other people in the same human system. That effect will

vary from individual to individual and will also depend on the history of each individual/agent.

In other words, the relationship of connectivity between individuals or teams is not uniform or constant but varies with time as well as the diversity and intensity of a system. The transfer of information or knowledge and the network of relationships are determined by the degree of connectivity, which therefore plays an essential role in a system.

Most managers will comprehend that they are agents with the potential to design a new order and the ability to redesign it. Conditions that would possibly produce uniform and constant evolution within a changing environment would be facilitated by management. New organisational forms would therefore be encouraged.

In systems thinking theory emergence, as said above, is associated with the concept of the whole. This is the reason why the system needs to be analysed as a whole, instead of treating it as a collection of separate components. There are emergent properties (life, love, happiness and success) which are ongoing processes and they have to be reproduced continuously, according to Gharajedaghi (2006). A winning team is not only characterised by the quality of the players but by the quality of their interactions.

The above discussions demonstrate the significance of the role played by leadership and management in a learning organisation.

2.7   Understanding Change through Leadership

As stated above, most organisations are undergoing a state of change and transformation, and SANRAL is no exception to this. One of the key strategies of change is leadership. When organisations go through change and transformation an accompanying messiness is possible.

Goleman (1999) identifies six leadership styles, as shown in table 2.1 below.

Table 2.1 Descriptions of Leadership Styles

Leadership Style	Description
1. Coercive	Compliance is a priority to this leader.
2. Authoritative	Leader who mobilises people towards a vision.
3. Affiliative	Harmony is created by this leader, who therefore builds emotional bonds
4. Democratic	Consensus through active participation is forged by this leader.
5. Pacesetting	High standards of performance are set by this type of leader.
6. Coaching	This means that people are developed and prepared for the future.

Two of the six styles (coercive and pacesetting) affect people's morale in an organisation and, in turn, their performance. The remaining four have an important and a constructive effect pertaining to performance and the cultural climate in an organisation. A pacesetting leader will demand innovation after innovation. This is likely to destroy a good cultural climate in an organisation because most of the staff would feel de-motivated by the pacesetter's requirements for excellence and, therefore, their morale will drop.

On many occasions the pacesetter knows what he/she wants but he/she can't state it clearly. Similarly, the coercive leader is one who has some of the best ideas but fails to convince others to buy into them. In fact, in most cases the opposite occurs. That is where people oppose his/her ideas.

It means therefore that leaders who have excelled in four or more of the above leadership types, specifically coaching, being democratic, being authoritative and being affiliative are likely to experience the best climate and performance in an organisation.

Fullan (2001) argues that most successful organisations go through phases of low morale, a lack of confidence, weak performance, etc, particularly during rapidly changing times. As alluded to before, in section 1.2, there is a general problem of global change that has been felt

in most organisations around the world especially since the 1990s. Rapidly changing times are being experienced.

When organisations experience these changing times under uncertain conditions, the atmosphere within the organisation is negatively affected, in the sense that everybody feels uncomfortable about the future. This of course automatically affects the performance of the employees in a negative way, particularly if the organisation was not prepared for change. SANRAL has been going through these challenging times over the last few years and the spirit and the performance of the organisation has therefore not been the same. In other words there has been a decline in performance due the unhappiness of certain staff members. Fullan describes this experience as the implementation dip.

Fullan defines implementation dip simply as a decrease in the confidence and performance of an organisation. This, of course, happens when the organisation comes across an innovation that demands new skills and insights. In such a case, leaders who comprehend the implementation drop would obviously understand that the organisation is going through some problems. Among those problems is the fear of change, psychologically, as well as the technical skills shortage of how to deal with this change.

Fullan (2001) further explains that leaders are likely to learn more from those who disagree with them than from those who agree with them. It is therefore imperative that leaders should have a combination of various types of leadership styles. For example, leaders should have good ideas and be able to present them well (an authoritative style), while at the same time opening a debate with those that seek clarity or are doubtful (a democratic style).

In addition, leaders should try to build good relationships with those that disagree with them or do not trust them. It is therefore essential for leaders to accommodate those that resist change, as resistors might have ideas that have been missed, especially due to complexity or uncertain conditions.

Reorganising an organisational structure seems to be another way of addressing complex situations. Fullan describes re-culturing as the transformation of culture. In other words, it is about changing the way of doing things in an organisation. The meaning of leading in an environment that is changing in culture can be described as creating a new culture in an organisation. The role of leadership in an organisation is to enhance capacity in order to produce better results. Fullan argues that effective leaders are not those that possess a high

degree of intellectual brilliance but those who combine intellectual brilliance with emotional intelligence.

When change occurs there will always be disturbances as a result of differences of opinion. Then, of course, these differences should be reconciled. Thus effective leadership is about guiding people through their differences and being able to agree to disagree.

As said before, the people subsystem is the most central part of a learning organisation because, at the end of the day, people are the only creatures who can learn. People can be categorised, perhaps as partners in the business, as leaders/managers, or staff, or clients, or the communities served by the organisation. Each of these components/groups is very significant as part of the learning organisation and should therefore be empowered and encouraged to learn.

Treating employees as mature and capable workers, maximising the delegation of authority, involving employees in developing strategies and planning - all of these actions contribute to the empowerment of employees. Managers/leaders need to change to become transformational leaders and to move from controlling to empowering people.

Business partners also contribute to the company's success in the sense that the success of the company is, to a large extent, dependent on its entire business network. There are many benefits in involving community participation as part of a learning process, as this will help to build a future workforce and thus improve the image of the company.

2.8   Strategic Leadership and New Organisational Science

According to Ireland and Hitt (1999), it is not easy for organisations to envisage their future in an accurate manner, but examining what has happened in the past will help them to prepare for a better future. Ireland and Hitt (1999) define strategic leadership as a person's ability to predict and think about future planning. It is also about working with others to initiate changes that will create a viable future for the organisation.

It is always advisable for organisations to examine appropriate and sometimes innovative strategic leadership practices that are presently used with success by other visionary organisations. In this way it will be highly possible for them to plan for the future. Without

effective strategic leadership the probability of organisations accomplishing satisfactory performances is greatly reduced, when faced with global and rapidly changing environments.

A more competitive global economy is developing. There is therefore a lot of global competition for organisations. This started to be visible in the 1980s and 1990s. A new competitive landscape has been created by the global economy, such that there is constant change, and the sequence of events has become unpredictabile.

Organisations where strategic leaders incorporate a competitive paradigm shift are treated with great respect. This is where organisational flexibility, creativity, strategic thinking and speed are valuable. These organisations will have an opportunity to identify and exploit opportunities competitively. These opportunities will obviously emerge in the new competitive landscape.

Top managers in organisations have a responsibility to oversee the performances of their companies and have a major influence on the firm's strategic management processes. Child (1972, cited by Ireland and Hitt 1999) suggests that strategic leaders have decision-making responsibilities that influence the direction of the firms. In the past CEOs used to think that strategic leadership responsibilities were theirs only. They would shape the future of their firms alone, by using top-down directives. If the company grew and made a lot of profit for a certain period, the CEO was regarded as a hero.

The global economy has changed the environmental conditions in which these theories were used. This is because, in the past, relatively predictable and stable conditions existed. As a consequence of that, manageable amounts of uncertainties were produced with change treated as being linear.

Major competitors in the industry were mainly domestic, not global companies. This therefore means that most of the companies were more localised, either by country or state or continent, unlike today where most firms operate globally. Managers are now compelled to undertake their responsibilities differently. This is due to the new competitive landscape in the global economy. Ireland and Hitt believe strategic leaders' responsibilities cannot be centred on one person, the CEO.

Top management understands that it is not possible for them to provide answers for everything in the company and that they should learn with others. The global economy affects everybody at different levels within the organisation. Ireland and Hitt state that nowadays an

organisation is perceived as a community with employees as citizens. A community doesn't belong to one individual but to its citizens. In an organisational community strategic leadership responsibilities are shared among the citizens so that they create a future for the company.

When all of the citizens in an organisational community are recognised as strategic leaders in their own right, the future created for the company is viable. Ireland and Hitt believe that when such 'citizens' collaborate and function successfully they create an environment where knowledge is generated and innovations occur. They don't care where knowledge comes from, but filter that knowledge to all members throughout the company to avoid units learning in isolation.

These groups, which Ireland and Hitt call 'great groups,' also seek to learn from other parties. For example, an organisation like the South African National Roads Agency would want to learn from other firms like construction contractors, material suppliers, and surveyors, as well as other engineering service providers.

The top management team is normally regarded by the CEO as the most important 'great group' in an organisation. This is mainly because top management are at the apex of the organisation and are therefore accountable for strategic leadership. The global economy has made provision for top management to perform this function in an organisation. In fact, Ireland and Hitt believe that the new competitive nature of the global competition within organisations is required for effective strategic leadership.

Strategic leadership operations that are effective continue to emerge every day because the global economy is evolving and CEOs are always held responsible for the whole company's performance. One of the greatest challenges of a CEO is to establish an environment that helps to contribute towards a sustainable advancement of relationships among the organisational citizens, as well as other external stakeholders.

Great leaders are capable of sharing the responsibility of managing and taking a lead in the organisation, as well as sharing information. Ireland and Hitt believe that viewing other top management team members as partners will help CEOs to manage their organisations effectively. In addition, top managers must also treat the rest of the organisational citizens as partners, especially in a flat matrix type of organisational arrangement. Great leaders should have the ability to share leading and managing responsibilities among themselves and within the organisation, and to share ideas and information among other members.

Ireland and Hitt believe that top managers must be able to stimulate the organisation rather than control it. This means that top managers should provide strategic directives and encourage learning in organisational members that will result in the formation of intellectual capital. This intellectual capital should also be able to be transferred across the whole organisation.

In the modern world, strategic leaders will rely on the strengths that they have built on their organisation - flexibility, teamwork and the ability to construct for long periods of time – but they will also be able to meet short-term goals. This means that the organisation should be capable of meeting the current environmental and global demands while strategically planning for the future. Strategic leadership should be undertaken through interaction, by sharing ideas, information and knowledge. These interactions should be between the top managers and the 'citizens' pf the organisation.

According to Ireland and Hitt there are six elements of strategic leadership, namely, establishing the purpose or vision of the company, the maintenance and exploitation of core competencies, human capital development, development of an organisational culture that is sustainable and effective, emphasizing good ethics, and developing balanced organisational controls These issues will be discussed later.

In establishing the company's objective or vision, top managers and the remainder of the management team are responsible for providing clear direction. Top managers should have a vision with sound and implementable action plans for the company. Once the CEO, together with the rest of top management team, has formulated the general organisational purpose, the organisation will have the communal power to implement and undertake the strategies and courses of action to achieve the desired outcome.

Ireland and Hitt describe competencies that are core as the abilities that should give an organisation a competitive advantage over other companies. In other words a combination of qualities that are valuable, or too expensive to imitate, or scarce, etc will be correctly recognised as competences that are core, and there should be mutual agreement about them among the members of the organisational community.

It is therefore vital for companies to share knowledge internally, especially those that want a competitive advantage in the global economy. In other words, the sharing of knowledge that belongs to a particular organisation essentially influences decisions and choices that strategic

leaders agree on when deciding to utilise them as competencies that are core. The organisation's core competencies must be effectively grown through knowledge sharing. This will also result in good learning. In a modern world the firm's productivity will depend on the collective capacity to gather and use knowledge wisely. Nowadays, effective strategic leadership processes are those where knowledge breeds more knowledge.

Knowledge, information and the skills of the entire organisational community are the human capital in an organisation. Ireland and Hitt view the 'citizens' of an organisation as a vital asset through which core competences are built. Organisational 'citizens; always feel appreciated when given a chance to learn and expand their knowledge base. These are the views of most strategic leaders and CEOs of most successful companies in the world, according to Ireland and Hitt. Continuous educational investment in the organisational 'citizens; should yield a well-educated workforce with potential to form 'great groups.'

Ireland and Hitt further argue that companies who invest a certain percentage of their budgets in the education of their 'citizens' benefit by a substantial increase in their productivity. This in fact amounts to an approximately 8.5% increase in production for a 10% investment in education. In addition, according to Ireland and Hitt the global economy has shown that there will soon be a shortage in the supply of skilled labour, while there will be a high demand from the technology and engineering industries.

For example, there is a shortage of qualified personnel in South Africa at the moment. This is impacting negatively on the delivery of basic infrastructure and services by the government. Various ways of addressing this problem have been initiated by both the private and public sector. One of the major recommendations to address this problem is that people require training and education so that they can cope with these challenges.

Programmes like ASGISA, which is led by the South African Deputy President, offer opportunities for inexperienced personnel to get the necessary work experience. There are other initiatives in place, especially from private sector companies such as Microsoft, Eskom and IBM to assist the government in this regard.

The core values and the policies of a company form an effective organisational culture. In most cases the way strategies are formed and executed derives from the culture of the organisation. As described above, organisational culture reflects what the organisation has learnt over the years of its existence and how it has responded to the challenges of growth and survival.

Organisational culture can constitute a competitive advantage. Its influence can productively effect how the firm's business is conducted and the operational procedures that control the behaviour of the organisational 'citizens.' An effective organisational culture is a consequence of good strategic planning. This further stimulates growth in an organisation. A number of companies have excelled in productivity because of effective cultures. For example, Mittal Steel was the top steel producer in South Africa over the past two years due to their corporate culture, which rejects bureaucratic traditions, according to the SANRAL CEO.

When Mittal Steel took over Iscor in South Africa, business was not going well for Iscor and its production was declining every day. When Mittal Steel took over they first decided to change the top management. The old management had a top-down style of managing the organisation. After changing the people in the management they then introduced a more participative and open-door management style. Soon after this was done, production started to change, and there was an increase in steel production. After some time Mittal Steel became the leading producer of steel in South Africa, out-performing its competitors like Highveld.

According to Ireland and Hitt, having a moral filter, where the possible courses of action are assessed and analysed, is an ethical practice. Top managers have a huge influence on the company's practices with regards to ethics. In the modern world, effective strategic leaders develop trust and respect as cornerstones of the decision-making processes. Strategic leaders who possess these qualities have a great influence on their 'citizens' and are able to develop organisational cultures in which ethical practices are the behavioural habits.

Controls are significant in an organisation because they are guidelines to enhance performance objectives. According to Ireland and Hitt there are two tyoes of controls, namely financial and strategic controls. Top managers strive to strike a balance between the two in order to achieve growth in their companies. An exchange of information between CEOs, members of the top management and other members of the organisation is a requirement for strategic controls.

In order to execute effective strategic control, management must gain insight into the dynamics of various divisions or departments in an organisation. Ireland and Hitt argue that strategic leaders have the ability to create controls that produce creative behaviours. Employee behaviours that are flexible will also benefit their organisations.

Wheatley (1999) argues that certain planning experts in the world today talk about strategic thinking instead of strategic planning. In other words, instead of organisations having only to be capable of analysing and predicting, they also have to be aware of what's going on around them currently and to learn quickly. Organisations therefore require new skills.

Organisations need to build strong relationships by nurturing growth and development, according to Wheatley (1999). People need to start enhancing their listening and conversing abilities and respecting other people's uniqueness, as these are essential qualities in strong relationships.

Wheatley describes power in organisations as the capacity generated by strong relationships. In other words it is the energy that exists through good relationships. It is therefore important that attention be paid to the quality of these relationships. The era of having one individual at the top of an organisation making decisions alone should be replaced by a 'team player' era.

Wheatley further argues that teams that are self-managed are far more productive than other teams in an organisation. Participation and productivity go hand in hand. In fact, productivity benefits within a properly self-managed team, exceeding that of traditionally managed teams, according to Wheatley.

As said above, there is a systematic relation between participation and productivity. Leaders who have practised a participative and self-organising approach in their own organisations have witnessed the great desire that organisational 'citizens' have shown for the growth of their company. Their level of commitment, capacity, creativity and energy increases tremendously.

Leaders should encourage creativity and change in their organisations but keep local solutions localised. This means that leaders should avoid copying innovation that has worked somewhere in the organisation and impose it in another area within the organisation. This poses a lot of challenges and can sometimes prove to be a failure, according to Wheatley. In fact, it limits the creativity of everyone in the organisation. Information about some innovation that has worked elsewhere may be very helpful but the innovation cannot be imposed on others.

If the 'citizens' in an organisation are quite clear about where the company is going, and know its true values and purpose, they are always willing to create and contribute. When the 'citizens' understand these objectives, a collective solution emerges. Organisations achieve

this by creating systems of relationships whereby all members of the system benefit from their connections. Wheatley (1999) describes emergence of this kind as self-organisation. Self-organising systems are systems that posses the ability to re-organise themselves and to deal with new information when faced with increasing levels of disturbance.

Self-organisation in a firm is a long-term goal requiring patience and support. This is because meaningful change is a long-term process. Wheatley argues that when living systems self-organises they develop a shared insight of what is significant, what type of actions are required and how these actions will get done.

According to Wheatley, in workplaces where leaders try to force the rules and create competition, there is a tendency to disregard or undermine people's abilities. This kind of approach, sometimes, produces a high level of energy but it is negative. In this case, power becomes a problem not a capacity. If power is the capacity to improve performance in an organisation, then the quality of relationships between agents needs to be well looked after.

According to Ireland and Hitt, CEOs who use and apply effective strategic leadership practices are the ones who benefit by creating competitive advantages within their organisations. This of course is due to the fact that strategic leaders in the 21st century should be committed to being honest, open, and forthright about their stakeholder interactions, especially with the organisational 'citizens.' The continuous changes in knowledge states create instability and are part of an environment that is competitive.

The consequence of having a competitive advantage is that organisational communities allow their firms to enhance their global competitiveness. Strategic leaders should keep themselves aware of the data that will assist them to envisage accurate global world changes. Strategic collaborations with other companies in the industry will also help deal with global changes.

2.9   Characteristics of Successful Organisations

Weymes (2002) argues that the success of an organisation depends on the formation of sustainable relationships. The main purpose of leadership is to positively influence the feelings and emotions of all those associated with the organisation. This will ultimately determine the prevailing direction of members' relationships outside and inside the company.

As said before, in the past CEOs used to issue directives and orders through a command and the directives would be implemented without question. In other words, initiative and inspiration would be discouraged. Today it is recognised that innovation and inspiration are the key to knowledge creation. But again, knowledge is created through the sharing of information and conversations. This is a process that can happen only in an environment where trust and integrity are valued. There is a challenge for the CEOs of organisations to establish an environment conducive to the free exchange of information and ideas, or that facilitates the development of such sustainable relationships.

Weymes argues that traditional hierarchical organisations have the potential to derail communication, because of their functional silo arrangement. When an organisation rejects the silo mentality it opens up opportunities for a complex network of relationships to emerge. Though these relationships do not have to be formally managed, an environment must be created for them to grow, and this critical role needs to be driven by the CEO.

There are two key factors that organisations need to understand in order to deal with the rapidly changing world, namely the need to overcome resistance to change and the need to value people. Organisations have to keep pace with the rate of change in the environment. An organisation can have many resources but if it cannot match the rate of change in its environment, those resources would just be a waste and would therefore simply delay the death of the organisation. For example, organisations that resisted change in South Africa are currently finding it difficult to survive in the new dispensation.

In the engineering sector alone, a charter was initiated to measure all private companies with respect to their affirmative action goals. This charter requires companies to submit their proposals stating how they are going to implement/achieve their goals within a certain period of time. There is a scorecard within the charterand targets are set for all companies to reach by a certain period of time. Organisations that resisted these policies when they were introduced find themselves left behind now that they are being measured against the charter.

The other factor that organisations need to understand and recognise is its people. People are the primary asset of any organisation. Human beings are good at innovation, dealing with "chaotic" situations, adapting and learning. It is therefore imperative for any management to keep the organisation's people happy and productive. This will obviously assist them to learn and adapt, to the advantage of the organisation.

The fact that people are able to adapt does not necessarily mean that the organisation will adapt in complex situations. The machine metaphor is still deeply embedded in a lot of our organisations. This is the paradigm of replacing the humans with machines. The behaviour of agents, in this system, is defined and predictable. Unlike in human organisations, human beings are the components of the system and can be quite unpredictable. In the machine world, innovation and creativity is vested only in certain individuals in the organisation.

Successful organisations should therefore use the direct opposite of machine-like models, searching for a model where there is great flexibility in the organisation's structure, where the decisionary authority is spread across all levels of the organisation, and where sensitivity to changes in the external environment is valued. Companies who model their organisational structures as a complex adaptive system would have company policies and procedures that are guidelines for the employees to follow and not rigid rules not to be broken.

According to Gharajedaghi (2006), successful companies rely mostly on informal organisation, self-organisation of networks of relationships and interactions that develop from purposeful collective activities, instead of detailed formal organisational structure. When people are challenged and motivated, they like solving problems and coming up with new ideas. Therefore the managers of successful organisations know that in order to succeed, the organisation should be ready and fit to deal with changes in its external environment and that these changes will vary from time to time.

Organisations should allow for experimentation to happen. If that doesn't work, people should not be punished. Instead, the event should be regarded as a lesson. In this case there must be a clear distinction between mistakes committed because of members' learning new things, and those that are committed due to carelessness. Management will have to establish the cause of a mistake before taking action against any members of the organisation.

Organisations that are still functioning in the old paradigm, like machines, and managers who act as controllers of those machines cannot adapt and allow innovation to happen. In fact these organisations are doomed to die and are unable to carry out their purposes.

Another aspect of successful organisations is the nature of their strategic planning. It is not possible to have long-term strategic planning in a complex adaptive system model. Planning for twelve to twenty-four months is possible but should be treated as a guideline. It should be flexible to be able to adapt as fresh events unfold.

One of the lessons that can be drawn from the study of complexity and management is that CEOs should be aware that their firms/companies contain all kinds of complexity and that they need both old and new management science. According to Lewin & Regine (2000), simple rule management is possible or not at times where competitive advantage is developed as a result of actions taken. A simple-rule management style is a management where goals are clear and there is little uncertainty in the prevailing business environment. As stated before, CEOs should be able to create these environments.

According to Lewin & Regine, another lesson that can be drawn from complexity and management is that CEOs need to manage adaptive tension. Adaptive tension is the environment that should be created by managers for effective communication in an organisation, The way to manage adaptive tension is by keeping the agents or employees informed, making them aware of their performance levels, and how they are doing in comparison with their competitors.

In the business sector, the key to an organisation's success is the ability to learn quicker than its competitors, argues Takahashi (2006). Furthermore, the success of organisations also depends on effective collaboration with its stakeholders. For example, in the case of SANRAL, good partnerships with community organisations and funding agencies is vital in implementing certain projects in order to meet certain development targets. This implies that inter-organisational relations provide opportunities for organisational learning between collaborative organisations.

 Takahashi notes that the other reason why partnerships are significant is because individual learning is promoted among members of different organisations. This gives rise to good inter-personal relationships. Takahashi (2006) further argues that individual learning from other partner members depends on good inter-personal relationships. This of course leads to successful organisational learning. In other words, this demonstrates how an organisation learns through the learning of its people.

According to Takahashi (2006), learning occurs in various ways and in distinct situations. It happens informally and formally. There is also situated learning.. This happens when learning is intentional and deliberate. Learning also takes place informally, and this sort of learning is as important as formal learning. In the case SANRAL, past experience, capacity and motivation are vital in promoting learning.

2.10   Conclusion

The literature review has demonstrated that investigation must take place before a problem is solved,, and that defining a problem in terms of a known solution has proved to be an exercise in reproducing the problem. The two processes need to be separated.

The literature has also demonstrated that in designing a better approach a vision/image of the future is required, and that one then works backwards to the existing system. Sometimes problems lie in the environment, not in the system, as previously pointed out. It is this influence and control that will bear results.

As stated above, successful organisations understand that time is an important commodity and people are the key asset. Reliance on informal organisational structures, not rigid hierarchies, and relinquishing strict operational procedures, are the key features of successful organisations.

The issue of unpredictable and unknowable events that emerge might appear to make the concept of long-term strategic planning unworkable, but the understanding that human organisations are undergoing continuous change, and reinterpreting the world defines planning as a guideline. The ongoing development of emerging strategies can be facilitated by effective planning. Therefore, the ability for an organisation to learn faster than its competitors gives it an advantage in the long run.

Complex organisations require a different managerial approach. According to Mitleton-Kelly (2003), they do this through recognition and implementation of an enabling infrastructure. This enabling infrastructure is comprised of technical, social and cultural situations which make daily operations of an organisation easier or formation of a new organisational structure. The interacting agents then create the enabling conditions and their interactions produce certain patterns of behaviour as well as emergent properties.

Excessive control and intervention in an organisation can be counterproductive, and the organisational 'citizens' should therefore be permitted to explore and take risks. By taking risks, but not unnecessary ones, new ways of doing business emerge. This, of course, entails that all of the organisational 'citizens' take responsibility for the decisions and actions that they implement.

Top managers understand the perceptions, emotions and feelings of those around them, create an emotional connection with those around them, and build pride in the organisation. Through honesty, integrity and openness an environment of trust and fairness emerges in the organisation, creating a family-like atmosphere.

Mitleton-Kelly (2003) suggests that organisations which achieve unexpected but successful results should concede that complex systems arise out of simple systems. It is not advisable for leaders to take decisions based on linear assumptions. A good manager will determine what output is wanted and allow the system to find ways of obtaining it. The manager's responsibility is to constantly remind the organisational members of what needs to be accomplished and advance conditions that facilitate prevailing changes. This means that a manager should be able to have a vision instead of plans.

The literature review has also demonstrated that the principles of a learning organisation and complexity are inter-connected. Senge (1990), as mentioned above, defines systems thinking as seeing through chaos, managing interdependence, simplifying complexity and understanding choice. It has been demonstrated that the theories of feedback processes, self-organising, co-evolving, inter-dependency and so on are inter-related and inter-connected. During turbulent times, when the rate of change fluctuates, learning organisations are capable of switching from survival mode to self-development mode. Survival mode means that the organisation is undergoing rapid changes, while self-development refers to the system self-organising itself, with new developments emerging.

CHAPTER THREE: RESEARCH DESIGN

3.1   Introduction

This chapter describes the methodology and data collection techniques that were used to conduct the research on how to enhance organisational performance by transforming an organisation into a learning organisation. It will give a broad overview of how the issues were researched. Nowadays there are lots of research approaches that can be employed. In this case a qualitative approach was adopted.

McNiff and Whitehead (1998) describe a qualitative approach in this context as one where practitioners are encouraged to undertake their enquiries in the actual workplace. Qualitative researchers are interested in how people visualise the world and how the events that take place are experienced. Qualitative researchers aim to understand what it means to experience and live with a particular condition – in this instance, how people manage change in a workplace. Qualitative research is more concerned with the quality and the texture of experiences than cause-effect relationships, according to Creswell (1994).

Willig (2001) argues that qualitative research is about being involved in the meanings associated with events by the research participants themselves. The main purpose of the research is not to predict a situation but to describe and explain events and experiences. Qualitative research involves studying people in their own institutions or organisations or homes.

Willig describes the above conditions as open systems, meaning that ongoing change is experienced due to the fact that conditions continuously develop and interact with one another. Therefore, the goal of qualitative research is definitely not to predict outcomes.

Creswell (1994) describes the qualitative approach as 'an inquiry process of understanding a social or human problem based on building a complex and a holistic picture.' As stated above, in this case the study will analyse the problem/s that are being faced by SANRAL and provide a holistic view of the situation. The research will therefore not try to quantify the problem but comprehend its social impacts. The approach will not be a quantitative one.

Creswell suggests the following assumptions with respect to the qualitative paradigm:

Ontological: in this case, the issue is described subjectively. The situation is constructed by the groups and individuals and is observed by the participants in the study.

Epistemological: in this case the researcher works or interacts with those being researched. In other words the gap between the researcher and those being researched is reduced or minimised. This is different in a quantitative paradigm, where researchers are distant from those being researched. According to Willig (2001) there are three epistemological questions. In order to evaluate a project in a meaningful way the researcher needs to know the objectives of the study and what type of knowledge the study intends to produce. In order to be able to compare methodological approaches with one another and to check if the studies to which these approaches were directed have met their objectives, the researcher must be able to have a good insight of their epistemological basis.

The following are the three questions referred to above:

The first epistemological question is about the type of knowledge that is generated by the study. Qualitative research may be designed to show the subjective feel of a particular situation or experience, or it may want to identify repeating patterns of experience among a team of individuals. The kind of knowledge that a methodology intends to generate depends on the view of what can be known.

The second is the type of assumptions that the methodology reveals about the world. This kind of question reminds the researcher of the ontological issue referred to above, where the concern is the nature of the world. And again arguments arise about whether ontological assumptions are realistic.

The third and last one is the conceptualisation of the active role to be played by the researcher. As stated before, all qualitative methodologies recognise that the researcher is, in one way or another, implicated in or part of the research process. However, the extent to which the research involves the researcher can be argued. In some studies the researcher is the focal point of the processes, because all of the findings are constructed by the researcher.

Axiological: in this instance the qualitative researcher takes responsibility for the value nature of the study and his/her findings are reported as personal, as against quantitative research, which is impersonal.

Rhetoric: this is the language of the study. As said above, in this case the language is personal and meaningful. Words like understanding, discover, etc, which are frequently used here, are qualitative terms.

Several other factors also came into consideration in the decision to use the qualitative approach:

Qualitative research can be written up in a literary form. Qualitative texts and journals are gathered from library experiences, websites, etc and are significant in providing illustrations of good writing.

The new computer software programmes are proving to be an asset for those who decide to choose the qualitative approach.

Another factor with the qualitative approach is the fact that the rules and procedures are not fixed. In fact, they are open, and new ideas frequently emerge. In this case the research design requires the researcher to take risks in an unclear environment.

The last factor to consider is the audience for the research. The choice of paradigm must be sensitive to the audience, especially when it consists of colleagues in the same field.

3.2   Methods of Data Collection

Some of the commonly used data collection methods in both quantitative and qualitative approaches are survey questions and in-depth interviews.

For the purposes of this study a survey questionnaire was prepared with questions related to SANRAL's operations a South African parastatal. The survey endeavoured to establish the general feelings, opinions, observations and so on of managers and professionals in SANRAL and other organisations (service providers and other state departments) that do work with SANRAL. In addition, it attempted to establish more generally how organisational change, transformation and their complexities have affected organisations in South Africa.

A sample of about 25 individuals was chosen. The sample was comprised of managers and professionals from SANRAL and other related stakeholders in KwaZulu Natal. The sample comprised both male and female participants.

The researcher used non-probability sampling which is sometimes described as a purposive sampling method. White (2000) defines purposive sampling as judgemental sampling. This is because the researcher decides to select the sample that will best provide the quality information/data required to meet the objectives of the study.

More than half of the sample consisted of SANRAL managers and professionals who have been with the company for a long time. This was done in order to ensure that the greater part of the feedback was gathered from individuals or groups of individuals who have vast experience with the organisation. In addition, these individuals are the ones who are most greatly affected by the changes that have been going on within the organisation and, therefore, were expected to provide a clearer picture of the situation than anyone else.

The remainder of the sample group was comprised of individuals who serve as service providers to SANRAL, and in particular consulting engineers. This group was selected because most of SANRAL's projects are undertaken by these consultants. This therefore means that all of them are familiar with SANRAL's Act, policies and procedures, as well as with most of the staff. Furthermore, some of them are currently involved in reviewing some of the policies and in the general re-structuring of the organisation.

As stated above, a few private professionals who work as service providers to SANRAL and other government institutions were consulted in order to determine their mental models about organisational change in South African parastatals.

The last group was comprised of individuals from other government institutions or parastatals, like Municipalities, Provincial departments, Transnet, etc. The reason for this was that SANRAL is involved in joint venture operations with these partners with regards to the delivery of some of the projects. It was imperative to get their opinions as well, as some of them were also going through the same organisational changes that are currently being experienced by SANRAL.

3.2.1   Questionnaires

3.2.1.1   Designing the Questionnaire

A survey questionnaire was prepared by the researcher, as copied on page 74.

Survey questionnaire

Q.1   What are your feelings about the changes and transformation in South Africa's organisations, taking into account the new policies and legislations that have been passed by Government since late 80's and early 90's?

Q.2   Do you think a shift of paradigm is needed in the way we do things in our organisations in South Africa? Why?

Q.3   If yes, how can this be achieved?

Q.4   Considering that the whole worldview is changing, what types of organisational forms become successful in rapidly changing and uncertain conditions?? Explain?

Q.5   If you were a CEO or Managing Director at SANRAL, what type of changes would you propose or implement?

Q.6   What do you know about change management approach?

Q.7   How would you deal with resistance to change in your organisation if you were the manager in your organisation e.g. SANRAL?

Q.8   What type of skills required by managers/leaders and employees in order for the organisation to perform well under uncertain conditions?

Q.9   What do you understand about learning organisations?

B. Interview question:

With a brief explanation, how would you describe the type of management style/approach required to perform in these changing times under uncertain conditions in our organisations e.g. SANRAL?Why?

The above survey questions were prepared at the beginning of the study. There were nine different questions to be answered by the chosen individuals, as listed above. The researcher tried to present open-ended questions in order to get explanations from the participants. One of the advantages of open-ended questions is that they provide as much information as possible. One of the primary purposes of the researcher was to gather as much information as possible from all selected participants.

3.2.1.2 Discussion of Survey Questions

In Q.1, Q.2 and Q.3, the researcher was trying to understand the participants' general feelings about the changes and transformation that SANRAL is undergoing. This included their general understanding of global changes in organisations and how organisations react to change. In particular, these questions address the issues of a need to change and what the driving forces for change were in South African organisations.

Q.4 addresses the issue of suitable strategies in terms of the organisational forms that are needed by organisations in order to cope with rapidly changing and uncertain environments. These include the skills that are needed by organisational members who function well under uncertain conditions.

In Q.5, Q.7 and Q.8, the researcher attempted to establish the general feelings of managers of organisations when leading change in their own organisations. What are the key factors that the management needs to focus on when driving change in order to enhance organisational performance? Issues of resistance and how managers deal with it were also discussed.

In Q.6, the researcher was trying to establish if the participants understood the processes and the principles of change management in organisations, particularly SANRAL. This is a broad concept and, therefore, the researcher will not discuss it in detail during the analysis of the findings.

Lastly, in Q.9 the researcher tried to establish whether or not the participants understood the concept of learning organisations. This, of course, was an attempt to establish if participants understood the benefits of transforming organisations into learning ones, in order to enhance organisational performance.

3.2.1.3   Interview Question

As can be seen above the last part of the questionnaire consists of a one-on-one interview question. All participants were asked to answer the interview question after completing the survey questions. In this instance the researcher introduce interviews as another form of data collection to be able to gather as much information as possible.

One of the objectives of the interview question was to probe the opinions of the participants with regards to management styles or approaches suitable under uncertain conditions. The interview took the form of a one-on-one engagement with the participant and lasted for only a short period of time.

Copies of the questionnaires were made and they were sent to the chosen individuals. This was done via the email or they were hand delivered, where feasible. Fortunately most of the participants were accessible by email, except for a chosen few, that are always out of their offices. The questionnaires were hand-delivered by the researcher to those who could not be reached by email.

All participants were then requested to spend some time on this exercise and answer all of the questions. This was to take no more than two hours of an individual's time. Follow-up telephone calls were made a week after delivery to try and ascertain if the individuals had had a chance to complete the forms, as well as to encourage them to do so.

At the time when the survey questionnaires were sent to all of the chosen individuals, a request was also made for an hour-long one-on-one interview with the participant as soon as the individual questions had been completed. The interviews were designed to assist the researcher to probe for more purposeful information from the individuals.

After the three weeks given to completing all of the forms there was another week of conducting the interviews. Appointments were made for these interviews during the three weeks of completing the forms. As stated above, each interview was to take no more than an hour.

Kvale (1996) describes a research interview as a conversation. In most cases during our daily life a conversation draws attention towards the actual topic itself and thus overshadows the purpose and the structure of the conversation. Here the conversation focus is between the interviewer and interviewee, and critical attention is paid to what is said. A professional

interviewer's approach will vary with the function to be performed: a job interview, a research interview, etc. A research interview can easily be one-sided questioning relating to the topic.

Kvale suggests that there is a third type of interview described as a philosophical discourse. In this case the partners are on an equal level. This means that both the interviewer and the interviewee can ask questions and supply answers, and therefore both of them are participants. Furthermore, both parties are responsible for investigating all of the ideas. In this study a professional interview approach was followed.

The survey questions and interview questions that presented to all of the participants attempted to investigate what constitutes a learning organisation in South Africa. The theme of the survey and the interview were how members of an organisation (both managers and members) respond to the rapidly changing times and uncertain conditions in our organisations. It was expected that it would be easier to engage with the interview question once the participant had gone through the survey questions.

According to Kvale there are twelve aspects of qualitative research interviews. The following table, 3.1, is a list and description of these aspects.

Table 3.1 Aspects of Qualitative Research Interviews (Source: Kvale 1996: p.30)

Aspect	Description
1. Life World	As described above the actual research question is theme oriented. Two individuals engage each other about the theme. The resulting responses can then be analysed based on the life world the individual has experienced.
2. Meaning	In this instance the interview seeks to ascertain the meaning of the theme in the life world of the topic. In other words the interviewer recognises and interprets what the interviewee has said and how it is said.
3. Qualitative	Here the interview is concerned about qualitative knowledge rather than how it is quantified. In addition the interview tries to cover both a factual and a meaningful level of knowledge. Lastly the interview seeks the explicit description of what is said.
4. Descriptive	In this case the interview intends to obtain uninterrupted descriptions of the discussed subjects. It further probes the feel and the experiences outlined in the subjects.
5. Specificity	Here the qualitative research interview tries to describe and probe certain specific situations in an area of research.
6. Deliberate Naivete	In this case the qualitative interview endeavours to put together descriptions of all of the relevant themes of the interviewee's life world. Instead of the interviewer having pre-determined questions for analysis, the interviewer enables the interviewee to be open and provide unexpected phenomena.
7. Focus	In a qualitative research interview the focus is on certain themes in the interviewee's world. It means that the interviewer leads discussions towards certain themes.
8. Ambiguity	In this case the subjects' discussions are sometimes ambiguous.
9. Change	In this instance there is a possibility, in the middle of the interview, that the subjects change their descriptions and meanings about the theme. This is sometimes due to the fact that there might be some new aspects of the theme that were discovered.
10. Sensitivity	Here there is a possibility of interviews conducted by different interviewers being different whilst they were using the same interview guide. The difference in sensitivity levels as well as the topic of the interview is the driving force here.
11. Interpersonal Situation	In this case the interviewer and the interviewee influence and interact with each other. This can sometimes lead to emotional interaction by either party.
12. Positive Experience	Here there is a possibility that the interview itself becomes a rare and enriching experience to the interviewee and in that case the interview comes across as a conversation between the two people.

In Table 3.1 above, the researcher is trying to demonstrate different aspects of qualitative research interviews. This means that the survey questions and the interview questions will be a combination of all of these aspects. In other words, the questions that the participants will be attempting to answer are a combination of all of the abovementioned aspects of qualitative research interviewing.

It will therefore be relevant to describe the different aspects of qualitative research interviews, as the participants' responses will be different from one another's, and the way they interpret the question will also be different.

The whole exercise of survey and interviews was expected to last for about four weeks. Thereafter all the completed forms were collected and analysed.

3.3   Data Analysis

The data will be collected from the participants by the researcher in the survey questionnaires. As soon as the raw data had been collected the researcher (in the survey and interview questions) went through each question for each participant. This meant that the researcher interpreted what the participant was trying to convey to him and presented the response or result in his own format.

Responses that meant the same thing, though at times they were presented differently by different participants, were combined, and a single response was presented by the researcher as a result. This meant that the researcher will had to go through each question for all the participants and then combine those that were similar or had the same meaning and list them under the results section (next chapter). This applied to all of the questions.

Patterns and relationships of meaning were then developed. Through this process the researcher was also able to analyse his/her own experiences in order to have an insight into those of the informants. These results are presented as findings and analysed in the next chapter.

The recording of data or responses from the interview questions also took the same format as the survey questions. The only difference was that the interviews were recorded by the researcher. After all of the interviews had been conducted the researcher combined all of

those that were similar into one answer for analysis purposes. The interview resultsreflected in the next chapter are therefore a summary of the data recorded by the researcher.

CHAPTER FOUR: RESULTS AND ANALYSIS

4.1   Introduction

As said in the foregoing chapter, the presentation and analysis of results will be dealt with in this chapter. After the interviews had been conducted, as outlined in the previous chapter, all of the completed survey forms were collected from all of the participants. Out of the 25 chosen participants, only 21 were able to complete the forms in full. This means, therefore, that the analysis will depend on the feedback received from 21 participants.

4.2   Results from the Survey Questionnaires

As stated in the previous chapter, the participants were selected based on their seniority at their organisations. Furthermore the participants were selected from SANRAL, service providers and other government institutions. Of the 21participants that returned the survey questionnaires, 15 (70%) of them were from SANRAL. Then 10% came from other government institutions and lastly the remaining 20% came from service providers. The results will then be analysed according to the above split.

Firstly, when selecting SANRAL participants, the service of the individuals with the organisation was considered by the researcher. The reason for this was to make sure a wider and broader scope of data was gathered from individuals with long service, because they had been with the organisation before major changes started happening. Another reason was because the experience factor would play a big role when analysing the results.

Fig 4.1 below illustrates a graph of selected participants' experience with the organisation.

Experience with the Organization

2%

10%

18%

30%

40%

2% >25yrs exp
10% ≤ 25yrs exp
18% ≤ 20yrs exp
30% ≤ 15yrs exp
40% ≤ 10yrs exp
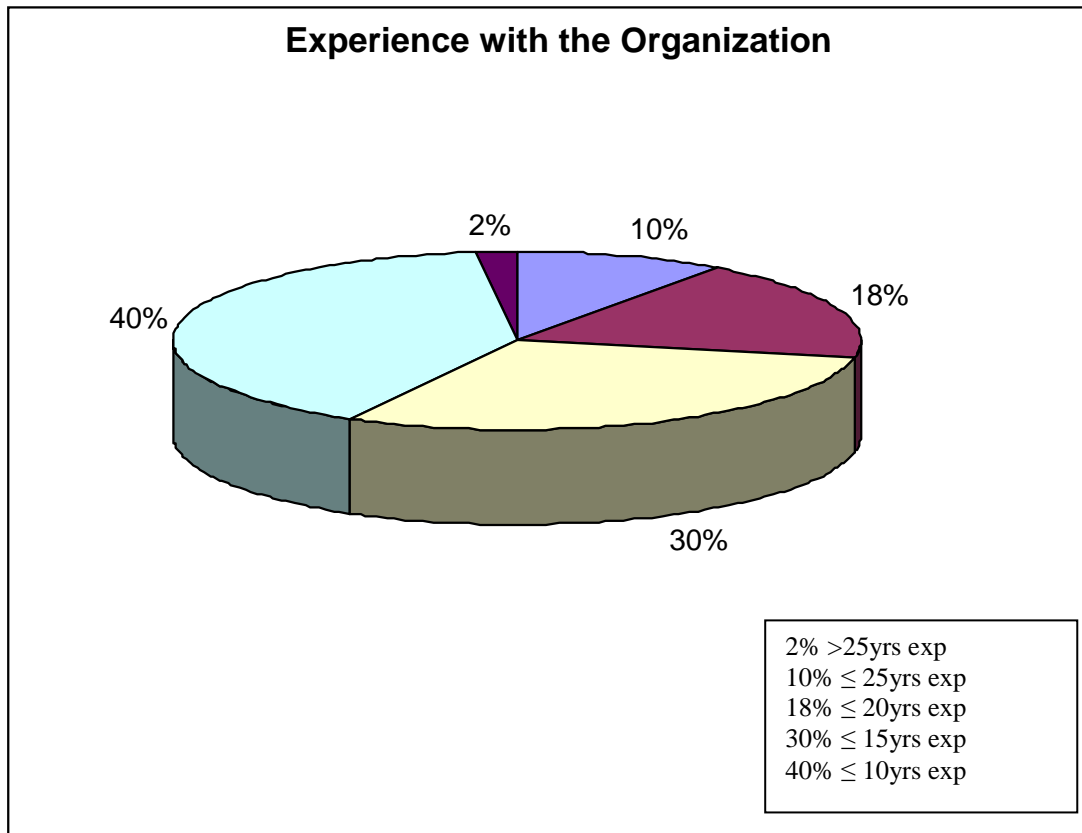
Fig. 4.1Experience of SANRAL Participants

In the case of service providers and other government institutions, the experience of working with SANRAL was not significant, as most of them were not permanently assigned to deal with SANRAL only.

The age of the participants was also considered to be important since it showed their experience with SANRAL, and most importantly, the experience of other staff members prior to working with SANRAL. Fig 4.2 below illustrates the age difference in participants.

Age of Participants

16% ≥ 50yrs
31% ≤ 50yrs
35% ≤ 40yrs
18% ≤ 30yrs
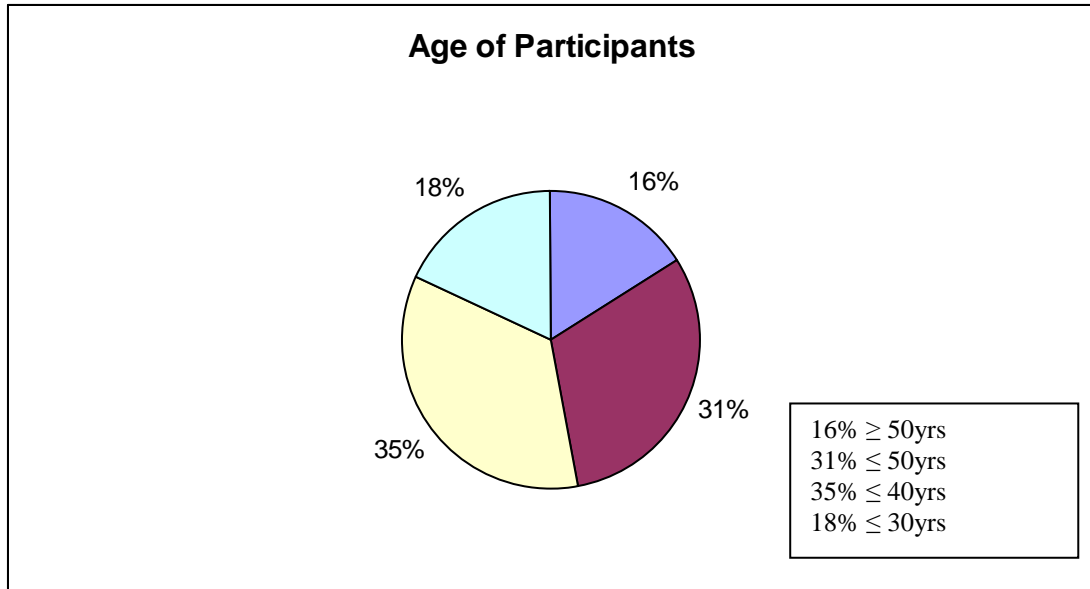
Fig. 4.2 Age of SANRAL Participants

It is evident from Fig. 4.2 that more than 60% of the participants had more than 10 yrs of experience and therefore were in middle- and top management positions in the company.

Fig.4.3 below shows the management split within the participants. This indicates that the representation of top management (TM) was more than that of middle management (MM). It must also be noticed that the analysis regarding race and gender was considered irrelevant in this research.
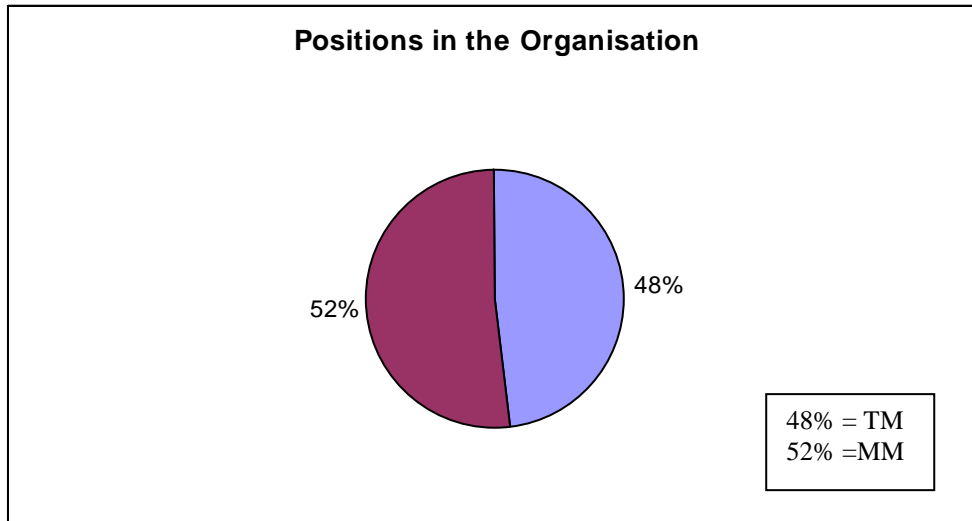
Fig. 4.3 Management Split in Organisations

4.2.1   Summary of Survey Results

In this section all of the answers to the survey questionnaire will be summarised and presented, as discussed under section 3.3. This again means that responses with similar ideas or answers will be combined or summed when presented. The actual survey questions are shown on the questionnaire in Appendix A and will therefore not be repeated here.

Question 1

- South African laws have changed quite dramatically, resulting in big changes in economic and social conditions. Major changes and transformation that have happened in South Africa have caused a lot uncertainty among certain groups in this country, particularly those that were privileged in the past.

- Change and transformation had to happen in South Africa, given the macro changes that have been a constant feature since the late 80s. The most significant thing is to redress inequalities of the past and give all South Africans their rightful place in society.

- Change and transformation is needed in South Africa, but must be managed properly as it has also resulted in experienced people, with core skills, seeking employment outside the country, because of these changes. There is a good framework, but there is a need for efficient government structures to implement it.

- Changes in legislation are contributing to the improvement of social and economic conditions in the country. Although it may be conceded that there is a need for transformation, it should not be detrimental to the social and economic development of the country. It is also contended that some of the new laws need to be re-visited, for example, Affirmative Action. This is viewed by some South Africans as marginalising certain ethnic groups.

- The South African government has tried hard to instil a new culture in the way we do business in our organisations, but is failing to transform adequately.

- The reason for the lack of capacity in South Africa is the scarcity of skills, compounded by political nepotism.

Fig. 4.4 below is a summary of different opinions among the participants. It is shown that participants' opinions can be split into three groups, group 1 consisting of those who agree with transformation, group 2 agreeing with transformation provided that it is managed properly, and group 3 believing that transformation is not necessary. It can be seen that 60% agree that there should be change and transformation in our organisations, 30% concede that change and transformation is needed but state that it should be managed properly, while 10% believe these changes and transformation have had a negative impact in our organisations.
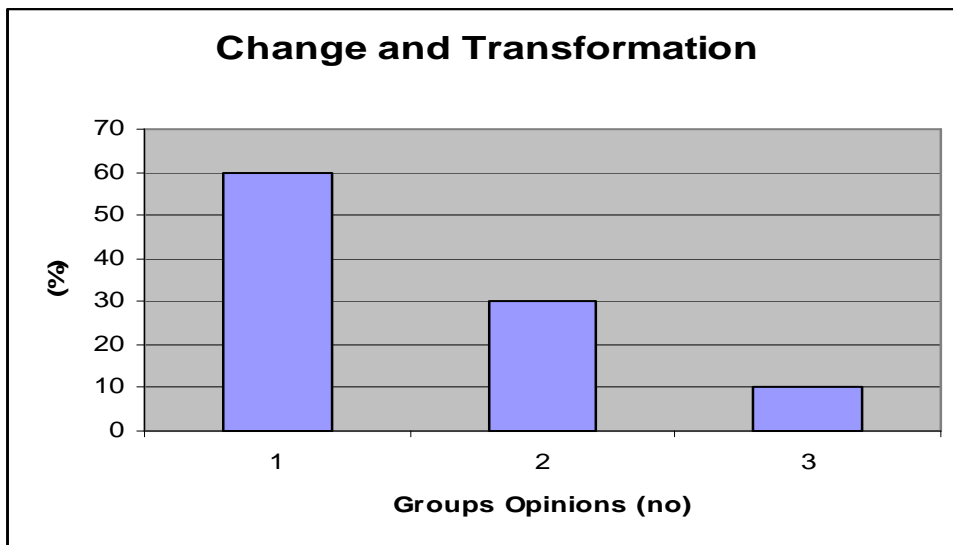
Fig. 4.4 Group opinions in terms of Change and Transformation

Question 2

- There is definitely a need to increase the focus on sustainability of organisational development. This in itself is a paradigm shift because, in the past, organisations were very internally focused and didn't really care about what was happening around them, according to Jackson (2003).

- There is a need for a paradigm shift if South African organisations want to be globally competitive. There is a need to ensure that standards, quality and integrity are upheld, with the view of opening opportunities to all.

- There is no need for a paradigm shift. There are well-tried and tested organisational and operating systems already in place.

Fig. 4.5 below illustrates the two different schools of thought of managers. 90% felt that a paradigm shift was required relating to how we do things in our organisations, while 10% felt no need, as their systems had been tried and tested in the past.

Need for a Pardigm Shift

10%

90%

90% = Need for paradigm shift
10% = No need for paradigm shift
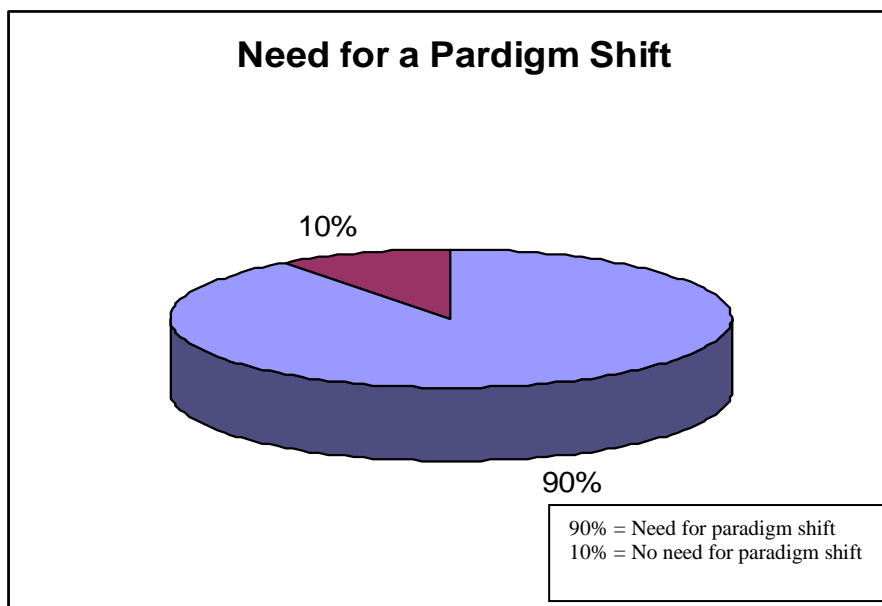
Fig. 4.5 Analysis of Paradigm Shift Need

Question 3

- A new way of thinking is needed in our organisations, but we need good leadership with vision and discipline. Organisations can strive to achieve the required change by reducing the amount of disruption caused. They need to ensure that as they transform and re-align themselves with the new visions and strategies, they have competent staff and good work ethics in undertaking these tasks.

- Management needs to be more aware of global changes and how individuals develop themselves. Organisations need to ensure that there is transparency in all negotiations with no vested interests.

- Organisations should put emphasis on proper training and incentives or reward schemes. One of the ways this can be achieved is by developing and putting into practice an effective communication strategy that will facilitate good relationships and interactions within the various units or sections of the organisations.

- Organisational ownership needs to be broadened to be more inclusive in demographical terms. While this has not yet been fully achieved in South Africa, there are progressive efforts in the form of various industry transformation charters, partly encouraged by the legislation.

Question 4

- In times of uncertainty, organisations need to rely on the united support and commitment of the stakeholders. This state can be achieved only when the majority of the stakeholders are working together. Organisations that rapidly transform themselves without losing focus on the prime objectives will become successful.

- Matrix organisations are better equipped to deal with complexity and uncertainties. Organisations have to be responsive to change, i.e. they have to adapt to the environment in which they operate.

- Organisations should be fully transparent in all of their operations and maintain a continued dialogue with all role players.

- Flexibility and the ability to make quick decisions is needed to address these challenges. The systems should be less rigid and have a learning focus. These are organisations that are willing to think out of the box and are capable of planning for change in advance.

Question 5

- Organisations need to ensure that the existing staff contingent is assured of their value and critical importance to SANRAL. Furthermore they should discuss transformation targets with all of the employees.

- Organisations should ensure that there is knowledge and opportunities for growth for all employees. They need to re-look at the organisation's structure to create more opportunities for young people, thus changing the flat organisational structure.

- Succession planning is a key element to ensure that members of staff are retained and that there is a smooth transition from the older generation to the younger one. This will help improve relationships between executive managers and employees. There should be a focus on more training programmes for managers.

- Organisations should ensure that all people feel valued and appreciated, irrespective of their positions in the organisation. They should advertise and explain re-structuring objectives and their likely outcomes. Furthermore they should create an environment where reform is welcome. This may require the hiring of surplus staff rather to avoid burdening already busy staff with another distraction.

- Organisations should encourage the rotation of the tasks/functions/roles of its people so as to ensure that people do not become comfortable in one position. Staying in one position for a long time might sometimes increase the degree of resistance to change.

- There is no need to make any changes in organisations. Organisations need to improve on the existing conditions.

Question 6

- Change management is about several ways of managing the implementation of change-which needs to be formal in nature and requires strong leadership to see it through.

- There is no need to have a change management approach as it makes people nervous and uneasy.

- Change management is about communicating the need for change, learning about new cultures and driving the process from the top of the organisation. Change in our organisations needs to be strategically managed to align the organisation to changes in the environment. It must also be directed to meet organisational goals.

- Continuous dialogue is the key to the change management approach. This is about managing people's fears of change, and meeting their expectations. The important thing is to inform and empower members of the organisation and all others involved in change. This will definitely place them in a good position where they are able to make informed judgements/decisions and change approaches rather than offering them ready-made solutions.

- Change management occurs when an organisation realigns its values, culture, people and behaviours, to encourage a desired end result. Expectations have to be managed and fears have to be dealt with.

- Change results in risks of varying degrees because of the disruptions caused. Sometimes change is imposed and, if reasonably foreseeable, it can and must be planned, communicated and implemented in order to cause minimum disruption and resultant risks.

Question 7

- Communication and the provision of information is the key to dealing with change in an organisation. An adaptive and cooperative approach, communicating to staff the reasoning and need for change, would be the best approach.

- The reasons for change should be explained to members of the organisation, i.e. the vision and strategy should be discussed and why the realignment of SANRAL to meet these objectives is necessary. A communication strategy should be introduced to ensure that all of the information relating to change is circulated. People should be given choices to make in terms of their job satisfaction. This would help to reduce potential fears.

- A consulting company which specialises in change management should be employed to undertake the process and to deal with the transition.

- This can be dealt with by showing the members of the organisation what the prospects are without change. There should be no tolerance when managing change, especially if the objectives have been clearly spelled out.

- The other way of dealing with resistance to change is by sending staff to courses and on-going training which highlights the need and benefits of change.

Question 8

- Managers should be adaptable and open to change. The skills required include pragmatism, open communication, regular consultations, clarity of objectives and strategy, and sticking to it until/unless new relevant information becomes available.

- Technical training is needed but is to be supplemented by people's skills to address the everchanging behaviour patterns of the people who make organisations function. Managers must be visionaries who are able to see the long-term results or possible scenarios for the organisation. They must be people-centred, realising that the human resources of an organisation are paramount to the success of an organisation.

- Managers and employees must be committed to self-development in order to keep up to date in their field of expertise. A good knowledge of the organisation's goals and objectives is required.

- There must be an ability to communicate at all times with personnel in a transparent and emphatic manner and to be aware of each individual's role in the organisation.

- Managers must have proper qualifications and sensitivity to the fears of others. They must have leadership skills, diversity management, effective communication, planning and understanding of people's behaviours. This includes the ability to listen to employees as well as to learn from other organisations that have gone through similar transitions.

- A more participative management style would lead to increased employee commitment, cooperation and contribution towards making the change least disruptive.

Question 9

- These are organisations that have built internal mechanisms to ensure the learning of their staff – that this learning is translated into improvements in the products and services offered, and that efficiency within which the organisation is managed.

- An organisation, irrespective of the growth phase it is in, should always be a learning organisation, given the fast pace of change all around it. It should be aware of the macro and micro factors that affect its functioning, and be able to decide and respond to critical factors that would 'make or break it,' or at least give it a competitive edge. A learning organisation is also willing to adapt to change more readily, thus staying a step ahead in problem solving, leading towards achieving a desired future state.

- These are organisations that are transforming and going through change, and at the same time undergoing new experiences and challenges. They can, through innovation, rise up to the challenges facing them through the transformation period. While organisations transform, the ability to gain knowledge must be at the forefront as they move forward.

- Learning organisations are those that are committed to continuous improvement.. They always look at the environment in which they operate, in order to adapt to whatever changes are taking place. Such organisations constantly scan the ever-changing environment and adjust their strategies to match the changes in the environment. They allow their employees to experiment and to try out new ideas and new ways of doing things.

- Learning organisations have a quick-decision making process. As a result they respond timeously to threats and are quick to identify and take opportunities. They continuously develop their knowledge base, keeping abreast of the latest trends.

4.2.2 Summary of Interview Results

A similar approach (to the one adopted when recording the survey answers) was adopted when recording responses to the interviews. Only 15 participants were available for interviews. Their responses are therefore summarised below.

- A strong leader is one who communicates to his/her organisation with enthusiasm, whose organisational goals are clear, and who plans ahead with the members of his organisation.

- The management style required at SANRAL should be assertive and participative. The task of transforming SANRAL as well as the political and economic challenges of taking over this enormous task requires a strong leadership team.

- Management should listen with equal attention to the ideas on improving working conditions and the needs of the organisation arising from all employees and stakeholders of the organisation. In addition, management needs to cultivate a culture of respect and cooperation amongst the staff.

- A vastly experienced, transparent, emphatic and communicative management would be recommended, as there will be a number of younger, less experienced personnel developing within the organisation who will need guidance and skills training whilst being challenged by the requirements of the many changing policies, rules and acts of legislation.

- A collective approach is best, because it involves all simultaneously and also creates the perception that change is happening from within. There will therefore be ownership of the process. Furthermore a flat matrix without a hierarchical system, rewarding and recognising initiatives and hard work, would be recommended.

- The management style / approach required would be one that encourages participative decision making and that introduces and justifies the change so that all can see the

beneficial end result. This is called a transformational or visionary leadership approach. This is particularly important when the workforce is primarily professional and educated, as in SANRAL. This would result in people understanding the objective of the changes required under uncertain conditions, resulting in greater employee commitment, cooperation and willingness to contribute.

4.3 Analysis of Results

An interpretation of the results obtained will be done in this section. The results for every question in the survey will be discussed so as to gain full insight into the approaches and views on the question of transforming our organisations into learning ones, and the benefits thereof. At the end, the researcher will comment on how the findings were drawn from raw data.

4.3.1 Procedures to be Used in Analyzing the Data

As said in the foregoing sections, the results of the survey questionnaires were combined and presented in summary form. Each question was presented separately. This was done in order to be able to analyse their results separately. Each question will therefore be analysed separately and findings will be drawn. The analysis of findings will be compared to the literature that the researcher has gone through.

Discussion of how the researcher came to formulate the questions in the survey can be found in the previous chapter and will therefore not be repeated here. And again, the actual survey questions will not be repeated in this section as they are listed in the sample provided in appendix A.

4.3.2 Transformation in Organisations

- In question 1 of the survey it was found that a lot of uncertainty existed in organisations due to changes and transformation that had occurred over the years and is still happening.

- Transformation has actually changed a lot of organisations including SANRAL, to re-align them in order to meet these challenges. The survey also indicated that the new

legislation (including the new SANRAL Act of 1998) also contributed to the improvement of social and economic conditions in South Africa.

- The survey further indicated that a new culture had to be adopted in terms of how SANRAL does its business in order to adapt to these rapidly changing times.

4.3.3 Shift of Paradigm

- This concept was related to question 2 of the survey. From the survey, it transpired that most organisations need to put more focus on organisational development. This is contrary to what was happening in the past where organisations would only focus internally and didn't really care about the global worldview.

- As illustrated in Fig. 4.5 above, 10% of the members of the organisation felt that transforming SANRAL into a learning organisation was not necessary. This group could be linked to the 16% shown in Fig. 4.2 that was more than 50 years old and were not fully committed to see change happening. This is just an assumption that could turn out to be untrue. Learning organisation theories recommend that team learning, training, strong managers and so on, are required in organisations under these conditions.

4.3.4 Change

- This concept was related to question 3 of the survey. The survey results indicated that a lot of participants concede that there is a desperate need for organisations, especially SANRAL, to adopt change and re-design their ways of doing things. The theory showed that those organisations that adopt change put themselves in a good position to cope with new cultures that emerge through these changes.

4.3.5 Organisational Forms

- This concept was introduced in question 4. The survey indicated that the management of SANRAL is committed to organisational development and therefore suggested various organisational forms, such as the cluster system, that should be implemented in the organisation, as discussed in Question 4 above. This is a system where members of the organisation who perform similar functions in different regions form

a committee to share ideas and experiences. Organisational policies are also proposed in these committees.

- The findings also indicated that theSANRAL management should be a leading example in terms of commitment to change.

- Furthermore, the data demonstrated that organisations need to be flexible and to be able to make well-informed decisions. The organisation should have a learning focus. This was also demonstrated by the SANRAL CEO in his response, in which he emphasised that organisational members should take ownership of organisational reforms.

4.3.6   SANRAL CEO's Proposed Changes

- The above concept was reflected in the results obtained in question 5. These results revealed that most of the participants have a clear view of where they want to take their organisations, particularly SANRAL executives. A restructuring strategy should be introduced and transformation targets discussed with all of the employees.

- The results indicated that in order to have continuity in an organisation, a succession planning strategy should be put in place. This would create more opportunities for younger people. This would motivate them and help them to realise that they are part of a learning team.

- The results revealed that the concept of a flat organisational structure is not the most viable structure at SANRAL, according to some participants. This of course is a subjective perception as some members are comfortable with a non-hierarchical organisational structure. This indicated that, sometimes, organisational members' performance might be adversely affected and they could become unproductive.

- The data demonstrated that, for SANRAL or any other organisation, it may not be possible to effect any change without starting with the structure, as one would not trust that these structures will change as a result of the changed vision.

4.3.7 Change Management

This concept was presented in question 6 of the survey. The results obtained indicated that most participants understood the meaning and the associated implications of change management. The results further indicated that a change management approach is required at SANRAL to address fear of change amongst the older members of the organisation.

- It was also found that for processes of change to succeed, organisations must be strategically aligned to changes in the outside environment.

- The results indicated that change management needed leadership with a vision. Members of the organisation should be empowered so that they are able to make informed judgements. This of course helps to eliminate or minimize resultant risk and the disruptions that come along with it. While it is expected that risks and disruptions will occur, this can be avoided with proper planning and communication.

4.3.8 Resistance to Change

- This concept was related to question 7. The results obtained demonstrated that resistance to change is a challenge to every organisation that is committed to transforming itself into a learning organisation. At SANRAL it was found that some of its members resisted change because of their fears of uncertainty about their futures within the organisation.

- The above observation suggests that without a proper communication strategy resistance to change will always surface. Managers need to educate and empower people to be ready for change.

4.3.9 Types of Skills Required

- This concept was related to question 8. The results demonstrated that most managers in our organisations (especially SANRAL) recognised the significance of training, communication, clarity on organisational objectives, investing in people's skills, etc. The results also indicated that the involvement of all of the employees in the transformation of an organisation is vital. This helps to enhance the level of competency in the organisation.

4.3.10 Learning Organisation

- This concept was related to question 9. The results showed that most of the managers understood what a learning organisation is. The researcher is of the view that this will be an advantage to SANRAL in terms of transforming the organisation.

- Again, the results showed that a learning organisation is one that creates, acquires, and communicates information and knowledge and produces enhanced results as a consequence of behaving differently. The results indicated that an organisation like SANRAL should have the ability to expedite knowledge transfer between different levels of the organisation.

4.3.11 Interview Results

As previously stated, the interview results resemble the results of the surveys. This is because the interview question itself was a summary of all of the survey questions. The reason for structuring the interview question like that was for the researcher to confirm what the participants had said in answer to the survey questions. Furthermore it was to probe for more information from the participants than they supplied in their responses to the survey.

- The interview results indicated that most of the managers, especially at SANRAL, believed that a strong leader who communicates his/her vision of the organisation is likely to succeed under uncertain conditions.

- The results demonstrated that the current management style at SANRAL does not fully accord with theparticipative management approach.

- It also transpired that reward/incentive schemes could be used to improve organisational performance. SANRAL has been using this system for a number of years now, but it recognises only individual performance. There have been recent attempts to reward team performance too.

4.4   Evaluation of the Results

A comparative analysis of the literature review and the findings will be conducted in this section. The evaluation will be of the same variables as were discussed in the section setting out the analysis of the results.

As earlier noted, change occurs because there is dissatisfaction with the current state of the organisation. It was clearly demonstrated from the findings that SANRAL had to adopt a new culture in order to cope with its transformation. This is actually in line with the opinion expressed in the literature review that culture can be transformed or reproduced even if it pre-exists for individuals, according to Gharajedaghi (2006).

Furthermore, it was noted in the literature review that organisations like SANRAL should have management that is always aware of global changes and of how the individual members of the organisation are developing. The results demonstrated that organisations need to focus more on the development of their employees. Although there was a small percentage of participants that did not agree that there is a need for a paradigm shift, the majority actually agreed to it.

In both the survey and the interview results, participants showed that they were not in favour of a hierarchical organisational structure. Matrix organisations are better equipped to deal with complexity and uncertainties, according to Lissack (1999). According to Fullan (2001), organisations need to be fully transparent in all of their operations and maintain continued dialogue with all of the members of the organisation and other stakeholders.

The results demonstrated that participative management is vital in an organisation. According to Wheatley (1999), strong relationships generate power in an organisation, which must then flow through the organisation as energy. This means that members of the organisation must take ownership of organisational reforms. Furthermore, Wheatley (1999) suggested that members of the organisation should take ownership of organisational reforms.

As alluded to in the literature review, there is a need for a continuous clarification and deepening of one's personal vision - for seeing things objectively and developing perseverance. This is called personal mastery, according to Senge (1990). This was again reflected in the results where most participants felt that employees need to be continuously informed of developments in an organisation.

While the results showed that some participants from SANRAL were not in favour of a flat organisational structure, the researcher is of the view that this type of structure needs to be well articulated to the organisation as to how members of the organisation could grow laterally, while acquiring knowledge and information. The reason for this view is that the researcher and other SANRAL managers believe that the rotation system is one of the best strategies in an organisation with regards to empowering people and capacity building.

Whenever there are changes in culture, in any organisation, it is most likely that resistance to change will be experienced. This means that resistance to change cannot be completely avoided but can be minimised. According to Ireland and Hitt (1999), leaders who are inspirational and visionary (transformational) are required during these challenging times.

The results have shown that transforming and managing an organisation like SANRAL needs a transparent and participative approach. It appears then that most of the findings from the participants are in line with what was discussed in the literature review. This brings the study to its recommendations and conclusions, which are to be found in the following chapter.

CHAPTER FIVE: RECOMMENDATIONS and CONCLUSION

The ability to lead change in an organisation has gained prominence in recent years because of the globalisation of commerce and the rate at which the environment is changing. The ability to lead effective change has become an important feature in a lot of organisations. With so many changes in the outside environment, organisations that are unable to transform will be left out in the cold.

The efficiency through which change and transformation are led and implemented by organisations is to a large extent dependent on the approach adopted by the organisation. Since SANRAL was formed as recently as in 1998 it has had the advantage of starting its business under the new laws and legislation.

The issue of transforming SANRAL or any organisation into a learning organisation came to the fore after an in-depth study of systems theories by the researcher. This was after realising that the challenges facing SANRAL i.e. restructuring, transformation, etc, were part of a global complexity and therefore demanded a new strategy.

As stated above, there are benefits in transforming an organisation to a learning one, with one of them being the fact that it creates an understanding of the difficulties facing management when leading during rapidly changing times, and what the possible approaches/solutions are when addressing these problems. It also allows the analysis of problems to be addressed as a whole.

It is therefore recommended that organisations like SANRAL refocus their energies in a more organised manner in terms of redesigning the future. In the context of the general principles of a learning organisation, a good leadership is vital in leading change in an organisation. Large-scale, sustainable transformation processes are dependent on effective leadership.

Fullan (2002) describes managers as instructional leaders. For a manager to be characterised by instructional leadership alone is not good enough. Organisations should provide opportunities for in-depth training, promoting problem solving and skills in thinking. The same goes for developing highly motivated staff. Furthermore, the working conditions and the morale should also be improved. Ireland and Hitt (2005) argue that organisations need leaders

who are capable of creating a fundamental transformation that is embedded in the organisational learning culture.

The research also revealed that, based on systems practises, the problems that SANRAL has experienced over the years due to transformation should be addressed as a whole instead of addressing them individually.

A focus that extends beyond maintaining high standards is desirable for leaders so that they can provide a more comprehensive leadership. This will then lead to a more lasting influence on their organisations. Leaders should be attached to the bigger picture and must be good thinkers who are capable of changing the organisation.

According to Fullan (2002) (as stated before), there are five essential components that describe the characteristics of leaders in a knowledge society. Ne could perhaps add them together by saying that leaders should display explicit, deep and comprehensive moral purpose in their relation to their organisations.

Having innovative ideas and comprehending change processes are two different things. This means that good change agents are not necessarily those who are committed to their own ideas. Having the best ideas is not in itself adequate in order to comprehend change. Leaders should try to assist other members of the organisation to analyse and get to an understanding of how to do things differently.

It is recommended for SANRAL that the CEO, together with his managers, should appreciate the fact that change is likely to produce an implementation dip. No matter how well the organisation plans its change processes, there will always be difficulties when trying something new. In fact, the most difficult time is at the beginning.

People should work together in order to accomplish deep, lasting change, and managers should therefore establish transformation initiatives that are basic in the learning culture of SANRAL or any other organisations. Relationships can be created with people from diverse backgrounds, especially those that think differently.

During turbulent times emotional intelligence is essential in an organisation, according to Fullan (2002). These leaders are capable of moulding good relationships because of their awareness or their own emotional makeup. They are sensitive and inspiring to others. Moral purpose is always fuelled and promoted by knowledge creation and the sharing of ideas in

organisations like SANRAL. From the research it was demonstrated that managers should provide opportunities for people to explore new ideas and invite questions. In addition, it can be concluded that relationships in an organisation improve when change is successful..

As the SANRAL managers indicated in their responses to the survey, if relationships improve the organisation responds and performs better. This actually improves the environment in the organisation as a whole. Hence, relationships that are well established are the key to sustainable growth in the organisation.

Effective leadership is vital for knowledge creation and sharing. Organisations must develop knowledge giving, as well as knowledge hunting. While most organisations endorse continual learning by constantly adding to their knowledge base, there will be no addition of knowledge if people ignore the culture of learning.

Leaders who possess deep moral purpose provide guidance. At the same time their ideas should be debated under the dynamics of change. The other important factor in improving performance in organisations like SANRAL is sustainability.

Fullan (2002) explained that there are key components when it comes to sustainability:

- Developing the social environment;
- Promoting contextual learning;
- Cultivating leaders (and making sure that there is a succession plan in leadership); and
- Improving the organisation's morale.

According to Fullan (2002), developing the social environment is vital in an organisation's physical environment, as it contributes towards the organisation's sustainability. Learning in context occurs as learning at work, while learning out of context occurs when managers attend workshops and conferences. The latter can be valuable at a later stage of transformation in an organisation for further development.

On the other hand, learning in context occurs when top managers are also members of an organisational learning team and are responsible for examining real problems as well as devising solutions. This type of learning has good spin-offs because it deals with specific situations.

The other advantage of learning in context is that it creates situations that are favourable for developments to continue and, thus opening doors for everyone to learn. This also helps to grow or develop current and future leaders/managers as well as the explicit monitoring of performance.

It must be noted that the research has shown that organisations cannot flourish on the actions of the CEO alone. This means that there should be many leaders at all levels of the organisation. Furthermore, in order to enable leaders to address problems/issues, many years of experience are required. This means that the question of sustainability also depends on the quality of leadership at all levels of the organisation. The more quality leaders there are, the better the organisational performance.

As said earlier, the other crucial requirement for sustaining performance enhancement is a good plan with regard to leadership succession. This is best achieved if leaders are available at all levels within the organisation. This means that organisations must focus their attention on enhancing development at all levels.

According to Fullan (2002), there will be quality top managers or leaders only when organisations have quality middle and lower managers. The function of a CEO as a leader (instructional) takes an organisation as far as the search for continual organisational performance.

Organisations need to start focusing on managers as organisational leaders within a change culture. The issue of a change in culture at SANRAL was discussed at length during the literature review. It was said there that culture cannot be imposed from outside, but must be disclosed from within. The fact that there was a lot of resistance to change from certain members of the organisation was a clear indication that the inner culture of the organisation needs to be properly disclosed to its members so that they can be prepared to deal with the change.

Seel (1999) describes organisational culture as the emergent result of negotiations that are continuous about company values and proprieties among organisational people and the atmosphere around the organisation.

The research has also shown us that in order for organisations like SANRAL to deal with their culture they have to address all of the interactions between the members of the

organisation. In most cases cultural change is brought about by a change in paradigm. Therefore, the paradigm that has been created should be addressed by the culture of the organisation. In other words, the prevailing paradigm in an organisation encourages certain types of behaviour within the organisation. However, it is not the CEOs or managers that impose paradigms; rather, they emerge from a multiplicity of interactions between the individuals within the organisation or community.

In the literature review it was stated that companies should be treated as complex systems. In complex systems most change arises as a result of the interactions of the systems' agents. In an organisation like SANRAL the agents are the organisational members and they are complex systems in themselves.

The study has demonstrated that whatever emerges from the top of the organisation, or at a high level in the organisation, from the people that created it, is a new pattern and can be fed back down to influence the further development of the lower levels of the organisation. Again, the literature review has demonstrated that the management of an organisation should move away from trying to change organisations but rather consider how they might assist them to become ready for change. This of course means moving to a state of self organisation.

Sometimes organisational change is characterised by being either top-down or bottom-up. The truth of the matter is that organisational change is neither the latter nor the former. Instead it can be characterised as being middle-out, meaning that everybody is involved and there is no preferred commencement place.

Some of the recommendations that the researcher would like to state will be in the form of guidelines. All of these are based on the researcher's understanding of the research outcomes as well as the survey and interviews conducted.

Organisations need first to assess and study the internal and external environments to ascertain if there are any changes and developments that require organisational change, before embarking on any change initiatives.

The analysis of the external environment will provide the organisational management with a clear understanding of the threats and opportunities facing the organisation, while the internal analysis will demonstrate whether the organisation's internal resources, for example its human resources, training, etc are adequate to deal with the threats and produce opportunities.

It is all the above analysis that will pave the way for a successful change to the organisation. SANRAL conducted this analysis before it was formed in 1998 under the banner of the National department of Transport and found that, under the current South African political and economical dispensation, it was imperative to change. Senior management had to embark on planning for change.

It is therefore recommended that the next step would be for SANRAL's management to ensure that all stakeholders, namely the employees, are involved. This was also demonstrated by the research survey that was conducted by the researcher.

The other important observation arose out of the survey was that during the organisation's planning phase all of the people who will be leading the change process should be carefully identified. At this stage, it is advisable that the leading team comprise of representatives from all levels of the organisation.

As already said, the issue of communication by the change leaders is significant during transformation and change in organisations. This assists in keeping everybody informed of what is going on. The other factor that SANRAL's management should introduce is more generous incentive schemes for both team and individual performances.

As stated above, resistance to change should always be anticipated in times of transformation. This means that the leaders of the change process should be aware of these challenges and put mechanisms in place to deal with or minimise them. And again this highlights the significance of communication.

Another big responsibility for change leaders is that they have to make sure change happens in an organisation as actually planned. And through communication, the change leaders should ensure that organisational members take it upon themselves to make sure that transformation and change become successful.

Again, it is advisable that change be implemented in stages instead of as an organisational overhaul. This was also demonstrated by the survey responses. This approach helps change leaders to be able to assess the process step by step and allow for feedback processes in each step. And if things are not working out well, they are able to re-structure and re-design the process.

This also allows for events to happen in stages so that it is easier to deal with them as they emerge. As the change is a continuous process, change leaders should keep abreast of the latest developments both inside and outside the organisation. This involves ongoing consultation with all of the stakeholders, including the employees. One of the weakest points with the SANRAL management is consultation with the staff. In fact, there are gaps that the organisation still has to fill in order to successfully address issues of transformation. These will not be dealt with in this study as they warrant a separate research process.

A vacuum exists between the future vision and the current situation at SANRAL. This needs to be addressed in order not to create any tensions during these changing times. It is therefore advisable that change leaders communicate the organisation's objectives effectively anduse their vision of the future as a motivation. This is normally done by highlighting the benefits and advantages of transforming an organisation as well as the disadvantages of not transforming.

As stated above, the other good motivator to enhance organisational performance is the introduction of incentives/rewards for team and individual performances. Once the goals are clearly set for everybody to achieve it is easier for the teams or individuals to work towards them if properly motivated.

5.1   Implications of the Study

The approach to change at SANRAL presented a challenge to the researcher, but this can be seen as being similar to the same challenge at other organisations. This means that SANRAL can use the study to fine tune its change approach, particularly since the issue of transformation is one of the top priorities of the organisation.

5.2   Recommendations for Further Study

There is a need to study change management further in South African organisations, especially during this transformation stage. The objective of the study was to cover, on a broad basis, the approach to organisational change in SANRAL and other similar organisations.

There are challenges like resistance to change and cultural change that provide more clarity on the matter. It is also recommended that similar studies be conducted in other parastatals,

like Eskom, Transnet, etc, to form a broad view of the topic of change management in the private/public sector.

5.3   Concluding Remarks

There are two concepts to be considered with regards to the social construction of reality and mental models. There are many definitions of these concepts. The public/private sector in South Africa is presently going through trying times, as demands for change and delivery are gaining momentum. The challenge is to get organisations like SANRAL to operate along business principles. To be able to be successful in this, there would have to be a need for organisations to start adopting international business disciplines. This will certainly entail a great deal of commitment in terms of change and a paradigm shift from management as well as members of the organisation.

It should be noted that CEOs create regions of complexity. Companies that learn and adapt are the ones that survive in the long term. During turbulent times, when the rate of change is slow, they are capable of switching from survival mode to self-development mode.

All of the challenges with regards to improving organisational performance in South African organisations described and discussed above can be overcome if the organisations are able to plan and manage change effectively.

These discussions have demonstrated that the principles of systems thinking and complexity are inter-connected. It has been demonstrated that feedback processes, self-organising, co-evolving, inter-dependency, etc are inter-related and inter-connected. Therefore, the application of systems thinking and complexity principles in organisational change cannot be separated.

Though there is an assumption that change management models and approaches that are used in parastatals like SANRAL can be equally applicable to the full public and private sectors, there might be more challenges in the public sector than anywhere else, particularly in South Africa.

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Appendix A: Survey questionnaire

A. Please supply answers to the following questions to the best of your knowledge.

Q.1   What are your feelings about the changes and transformation in South Africa's organisations, taking into account the new policies and legislations that have been passed by Government since late 80's and early 90's?

Q.2 Do you think there is a paradigm shift need in the way we do things in our organisations in South Africa? Why?

Q.3 If yes, how can this be achieved?

Q.4   Considering that the whole worldview is changing, what types of organisational
       forms become successful in rapidly changing and uncertain conditions?? Explain?

Q.5   If you were a CEO or Managing Director at SANRAL, what type of changes would
       you propose or implement?

Q.6   What do you know about change management approach?

Q.7   How would you deal with resistance to change in your organisation if you were the
manager in your organisation e.g. SANRAL?

Q.8   What type of skills required by managers/leaders and employees in order for the
       organisation to perform well under uncertain conditions?

Q.9   What do you understand about learning organisations?

B. Interview question:

With a brief explanation, how would you describe the type of management style/approach required to perform in these changing times under uncertain conditions in our organisations e.g. SANRAL? Why?