

**THE IMPACT OF SYSTEMS THINKING
ON COMPANY COMPETITIVENESS:
THE CASE OF SIEMENS LTD SOUTH AFRICA,
A LEARNING ORGANISATION**

By

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“The Impact of Systems Thinking on Company Competitiveness: The Case of Siemens Ltd South Africa, a Learning Organisation,”

ABSTRACT

The dissertation outlines the historical development of organisational complexity theory based on a review of the literature. Particular attention is given to the way in which complexity impacts on the performance of organisations. Systems theories, turbulence and chaos theory, learning and change, and organisational learning are discussed. The challenges to remain competitive which organisations are facing are compared with the approaches which have been taken in the company Siemens Ltd, using a framework which is based on an expanded interpretation of learning organisations.

The impact of the training on a number of young high-potential managers who have been trained using a learning-organisation systemic approach, is investigated. The results suggest that the changing environment of business and the novel form of training which was offered have combined to make the learning which took place deeply personal and central to positive changes to management which are taking place in the company.

Recommendations are made of how a systems-thinking approach (and becoming a learning organisation) can be applied broadly to companies that wish to improve the contributions of their managers in order to improve their competitiveness.

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CHAPTER 1 - SUMMARY

The study was conducted in the domains of turbulence, learning and change. The purpose was to investigate the impact that systems thinking and becoming a learning organisation have had on the company Siemens Ltd, using the examples of fifteen high-potential young managers who took part in the company's management development programme.

The research paradigm which was used was qualitative interviewing and the researcher sought to elicit and build a rich tapestry of stories which would reflect the understandings and experiences of those who were trained. Their assessment of the appropriateness of the current management culture of the company, the novel design of the training programme and the changes they have experienced in their lives and careers which can be attributed to this training were the subjects of the interviews.

The study explored the conservative history of the company, its success in South Africa for over one hundred years and the uncertainty it faces in trying to adapt to the new environment of business.

Current theories of organisational development, from the orthodox to the more radical were reviewed, and the decision to use Peter Senge's learning-organisation approach in the new management development programme was explained.

The writer used the study to validate his own belief that the response to complexity is for changes to the world views (the mental models which are described by Senge) of individuals and organisations to take place and for these changes to emerge from intense questioning, dialogue and learning in diverse groups.

The conclusions which were drawn from the study strongly supported the propositions which the writer had made. Although some caution was expressed regarding the general applicability of the approach, it was felt that there was sufficient validation to recommend this approach to other organisations that are open to the benefits of learning and change.

CHAPTER 2 – INTRODUCTION

2.1 Development of the idea for the dissertation and motivation for the study

Older, established companies have rich histories which were influenced by the periods in which they started and during which they grew. The corporation Siemens has such a rich history which began in the middle of the nineteenth century and which has profoundly influenced the nature of the company right up until today.

Max Weber (1864-1920) was a German economist and social historian. He taught at the universities of Berlin, Freiburg, Heidelberg and Munich at the beginning of the 1900s. Two of the books he wrote (which were published posthumously) were *The Protestant Ethic and the Spirit of Capitalism* (1930), and *The Theory of Social and Economic Organisation* (1947). In both books he espoused the role of puritanical Protestantism, especially Calvinism, in relation to capitalism (as cited in Kennedy 1998).

Although not a lot of writing had been done at that time on management and organisational theory, his influence on these subjects was very significant, much like that of Frederick Taylor, who in 1911 had written the book *Principles of Scientific Management*.

What may be a reflection of the conservatism of large organisations, the tough dogmas of rationalism, predictability and “one best way” which were proposed by both Weber and Taylor, are still the foundations of the way many organisations are managed. At the centre of Taylor’s ideas is a primitive form of performance management – which has been reworked but has amazingly survived. Weber’s influence has been more on the structures of organisations, and he coined the phrase “*Bürokratie*” (bureaucracy), which he referred to as the most efficient form of administration because it was based on hierarchical structures (as cited in Kennedy 1998).

Although modern writers on management (particularly Charles Handy and Rosabeth Moss Kanter in the last twenty years) have largely dismantled the thinking which promotes the hierarchical nature of modern organisations and the concept of life-long bureaucratic careers which he proposed, Weber believed that this form of organisation best harnessed the efforts of employees. Its pervasive application in many organisations bears testimony to its durability.

Weber wrote that:

“Experience tends universally to show that the purely bureaucratic type of administrative organisation – that is, monocratic variety of bureaucracy – is, from a purely technical point of view, capable of attaining the highest degree of efficiency and is in this sense formally the most rational known means of carrying out imperative control over human beings. It is superior to any other form in precision, in stability, in the stringency of its discipline, and in its reliability. It thus makes possible a particularly high degree of calculability of results for the heads of the organisation and for those acting in relation to it. It is finally superior both in intensive efficiency and in the scope of its operations, and is formally capable of application to all kinds of administrative tasks.”

(Taken from *The Theory of Social and Economic Organisation*, translated and edited by A.M. Henderson and T. Parsons, New York: Free Press as cited in Pugh 1971, p. 13.)

The writing of both authors (surprisingly in Taylor’s case as he was of course an American) had a big influence on how German companies were organised in the middle of the twentieth century. It is also interesting to note how each of them influenced German socio-political developments: Taylor for the impact scientific management theories had on the thinkers in the National Socialist party in the 1930s, and Weber, for the work he did as a member of the committee which in 1918 helped to draft the constitution of the Weimar Republic .

Siemens was founded in Germany in 1847 by Werner Siemens and Johann Halske. By the end of the nineteenth century Siemens was already competing with the giants of American enterprise, Andrew Carnegie and John D. Rockefeller. However whereas the Americans had started their businesses and were successful mainly in their own country, by the 1920s Siemens had already grown into a multinational organisation with companies or sales outlets in most countries of the world. Its success lay in the quality and technical brilliance of the early telegraph technology, and in the rigour of its bureaucratic organisation. (*Werner von Siemens – Inventor and International Entrepreneur*, by Wilfried Feldenkirchen, Ohio State University Press. Columbus. 1994)

The influence that the mother company had on its subsidiaries all over the world was unique and set it aside from many of its competitors. (It has been jokingly mentioned that

only the brands and consistency of approach of Coca Cola and the Catholic Church are more ubiquitous.) The influence of Weber and Taylor are obvious even today in Siemens which as a global company is still characterised by –

- one branding of **SIEMENS**
- one form of hierarchy
- one management system
- control strongly exercised from a German head office
- one commercial reporting structure
- one system of strategic planning

and this influence is very tangible in Siemens Limited, South Africa, today.

Criticism of the above is difficult, as according to a study done by Arie de Geus at Royal Dutch Shell and published in the Harvard Business Review of March-April 1988 under the title *Planning as Learning* only very few companies have survived for longer than even fifty years! Strongly traditional companies with a strong culture like Siemens, however, also have a downside which is noticeable, and which coincides with the demise and re-thinking of the premises on which scientific and hierarchical/bureaucratic management are based.

This began with the experiments and discussions which challenged these approaches called the Human Relations Movement in the 1940s and 1950s, led by people such as Carl Rogers, the father of humanist psychology (1961) and Abraham Maslow who defined people's hierarchy of needs (1954). This phase was followed by the Human Resources Movement in the 1960s and 1970s which advocated a balance between scientific management and human relations. Douglas MacGregor's theory X and theory Y (1960), Frederick Herzberg's two factor motivational theory (1966), and the late recognition of Mary Parker Follet's early writing on participative management (1918) represent the intellectual battles which were taking place to understand how organisations could best be managed.

Since the 1980s many of the prerequisites for the success of both Taylor's and Weber's theories, namely predictability, gradual change, the effectiveness of controls and an acquiescent mindset of employees, no longer apply as before in business. This has happened largely as a consequence of the greater complexity of the environment of

business, and the advent of what is called “the New Economy”. Added to this, in South Africa there has been what can be described as a “revolutionary evolution”, a dramatic and unprecedented changing of the order in politics and society. All of these have impacted on both business results and confidence of the local Siemens company in the last ten years. The reaction of the executive management in the company during this time has been interesting.

In the early 1990s, for the first time in the history of Siemens in South Africa, consultants were called in and a series of projects for change initiatives were launched. The outcome, which is probably not very different from the outcomes of similar interventions in most companies, was extremely disappointing. Leading consulting companies, carefully chosen, arrived with their preconceived ideas and frameworks, interviewed everyone, redefined visions and missions, did SWOT analyses, established key issues and developed strategies, set up implementation and monitoring plans, and LEFT!

In Siemens South Africa, on “Route Project”, lie the wrecks of various models of change which were put together over a period of ten years and which were aimed at showing us how we should do our business. An awful waste of money, energy and emotions!

And one of the ironies was that during this time, the 1990s, the company was doing more than ever before to recruit and train bright young staff. The potential for disillusionment was enormous.

Slowly however, over the last five years, despite the demotivation from previous mainstream activities of consultant driven changes, there have emerged groups of younger managers who have responded to in-company programmes of management development by approaching their employment and their careers differently, by moving from the mindset of linear and silo thinking to seeing interrelationships and patterns of change; by becoming parts of teams which have started developing new shared visions for their futures, and understanding the wholeness of the business they work in. This process was championed by the writer (with the support of the local Chief Executive of Siemens) largely as a consequence of his studies and reading during this time. (An outline of the approach which was adopted, which was called the Siemens Leadership Development Programme, is shown in Chapter 8.)

2.2 Deriving the topic

One of the events that signalled the changes which would take place in the environment of business in the 1980s was the unprecedented fluctuation which occurred in the oil price in the 1970s. Over a ten year period the price increased from \$2 to nearly \$40 a barrel! Those who were responsible for scenario planning and for developing strategy at the Royal Dutch Shell Company were among the first to recognise the fact that in those turbulent times, and the times that were to follow, new and different ways of running companies had to be found.

This unpredictability continued, and most companies were affected by the rapid changes in the business environment which occurred throughout the 1980s and the coming of what then came to be known as the New Economy. This started when businesses were confronted by a number of new phenomena: the end of the Cold War (which was particularly traumatic for the two divided states of Germany), the converging of world economies, the advent of computer networks, the establishment of global markets and the emergence of knowledge workers. All of these have contributed to the complexity of modern business. (Added to this is the fact that in South Africa, business is transacted in both the Old and the New Economy, and that the country displays characteristics of the First and the Third World.)

Reactions to these developments have been mixed. Many of the authors who wrote about traditional management practices of the 1980s became silent for a time when these changes were taking place, but partly recovered after the dotcom bubble burst in the late 1990s. But today everyone agrees that the New Economy is here to stay and brings with it unique challenges for the future.

Interestingly the most common reaction of managers to the current uncertainty and complexity has been their commitment generally to analytical and reductionist approaches, which many companies in fact now use. The most obvious proof of this is the way business processes are being cut up into smaller and smaller pieces, and with each of the pieces being “optimised”. But the resulting initiatives which all companies have used – MBO, JIT, TQM, re-engineering, rightsizing, empowering, strategic alignments, core competency development – which may be adequate in less complex environments of business, have somehow disappointed.

This has certainly also been the experience in Siemens in South Africa over the last ten years in its search to manage in the new, extremely complicated and challenging business environment.

During these years of turbulence, two things of interest happened in the company: firstly the initiatives which involved bringing in consultants to apply their frameworks and reductionist approaches were at their best only marginally successful, and then only for a short while. The methods of these consulting companies were for the most part traditional, i.e. they were based on assumptions about the business environment being predictable and linear – strongly cybernetic and displaying features first described by Jay Forrester in 1961 (causal loops and concepts of control which are dependent on negative feedback). This assumption (of the orthodox school of organisational development) determined the changes which the consultants proposed and which were generally proposals for new processes, greater control and more effective top-down planning – these being obviously more suitable for cybernetic environments of business.

The second thing that happened was the influence on the writer which some of the latest literature about the turbulent environments of business, for example Capra-2002, Chatterjee-1998, De Geus-1997, Hamel-2000, Lewin and Regine-2001, Wenger-1998 and Wheatley-1999, had on the design of management development in Siemens.

The importance that those who were trained should become part of company processes, rather than having these processes simply impacting on them, was fundamental to the new approach. They became part of a system in which the success of the system was determined by how well the elements on the system worked together.

Their training was underpinned by learning which took place experientially (by applying theory to solve real company problems), in diverse groups (cross-functional and with mixed genders and cultures), in a context-based way through exposure to real problems which Siemens faced, with support from coaches, and with the objective of forming learning communities. This approach was inspired largely by much of the writing on organisational learning.

On the dust cover of Peter Senge's book *The Fifth Discipline* (1990) are quotes by Fortune Magazine: "*Forget your old, tired ideas about learning. The most successful corporation of the 1990s will be something called a learning organisation,*" and by

William O'Brien, President of Hanover Insurance Companies, who has applied systems thinking extensively in his organisation: "*The Fifth Discipline lays the foundation for a true alternative to the authoritarian hierarchy.*"

What has happened in Siemens is that in its application of many of the approaches of learning organisations, a new generation of over one hundred motivated staff has emerged who are increasingly exercising their influence on the company.

The contributions that these young managers are making to the success and competitiveness of the company, and the extent to which these derive from the company becoming a learning organisation, are the subject of this dissertation.

2.3 Articulation of the problem

The aim of the research is to establish, through an in-depth investigation, the impact that systems thinking can have on a company's competitiveness through enabling it to become a learning organisation.

Many high technology companies which have concentrated on the management of technology, have not maintained their competitiveness in their markets because old orthodox styles of management are entrenched in their cultures. The question is how these companies can change in order to remain competitive. The study will show that one way is for companies to make the transition and become learning organisations, based on a systems thinking approach.

The bases of the research are the Business Units of Siemens South Africa and the group of new young managers.

To understand the nature of the organisation's present style of management, the study examines the influence which the German holding company has had on the local company, and how this has largely entrenched the traditional style of management. This is then compared with the way the new generation of young high potential managers have been taught to manage, are managing and in turn expect to be managed.

The significance of this study to individual managers, to the company Siemens and other organisations, and to the writer of this dissertation is shown.

Emphasis is given to the important aspects of complexity theory, systems thinking, innovation, learning and change.

2.4 General design and methodology

The dissertation examines the context in which companies are managed during times of change and uncertainty: systems theories which provide an understanding of processes of change, and conflict between traditional management practice and organisational development.

The dissertation reviews theory, in terms of systemic thinking and less orthodox views on management, organisational development and learning theory. The development of an approach to manage in these turbulent times, which is now known as the approach of a “learning organisation”, is investigated. A framework is set up, and against this, the most recent path which the company has taken towards becoming a learning organisation is discussed and critiqued. A possible way forward using systemic thinking to advance the argument for companies to become learning organisations will be presented.

The research approach that is deemed to be most appropriate for this investigation is the method of **Qualitative Interviews**, and this is applied in the number of interviews which are conducted as part of the research.

2.5 Dissertation outline

Following the introduction which was done in this section the literature relevant to the topic is reviewed and conclusions are reached about the arguments for learning to be paramount for organisations to remain competitive in turbulent business environments.

A framework for identifying a learning organisation is derived and the research approach to establish the extent to which the “new” management style is being adopted is discussed.

The design and methodology which are used to collect data, the data analysis and critiques of the processes which lead to the conclusions of the study, and recommendations then conclude the formal part of the study. The references to the literature and appendices which outline the new approaches which have been adopted by

Siemens and details of the interviews (questions posed, lists of those interviewed, examples of summaries of the interviews) conclude the dissertation.

CHAPTER 3 – LITERATURE REVIEW

3.1 Demarcation of literature covered

This study is about the challenges which companies today face in moving from the traditionally successful management styles which they have used to the softer issues of modern management. These challenges have been brought about by the turbulence of business which has arisen from the complexity of the last fifteen to twenty years and the advent of the New Millennium (described by Stephen Hawking – 2000, as the “*century of complexity*”).

At the heart of the discussion is the issue of mindset and worldviews about basic human responses to work and to responsibility. The disagreements of Plato and Aristotle from far back in history (one believing in an authoritarian approach, and the other in participation and empowerment in order to elicit good performance of people) are manifested in more recent writing on management theories (Douglas McGregor’s-1960-theories X and Y – authoritarian versus democratic management), organisational development and change management (reductionist versus holistic approaches) and strategic management (prescription versus emergence).

The dominant theory which is practised still today by many older, more traditional companies (as unlikely as it may seem) is the approach of scientific management as espoused by Frederick Taylor. The prevailing understanding of companies which practice this form of management is that the future is predictable and that feedback from not achieving goals (negative feedback) determines corrective action. (This is cybernetic understanding of organisational/systems development which will be discussed later).

Elements of this style (which is essentially similar to work-study theories) have strongly influenced modern writers. Michael Hammer (1990) who is acknowledged to be one of the most influential writers on management and the father of the principle of re-engineering based his approach on Taylor’s work: identify key processes across departments of a company, strip them down, and maximise their efficiency.

More recently James Champy (who had worked with Hammer) extended the re-engineering idea in the book he wrote with Hammer *Re-engineering the Corporation* (1993) and in his book *Re-engineering Management* (1995).

This process whereby an author builds on and adapts his own ideas or the ideas of others is very common in management writing and a form of evolution leads to new insights. The writing of individual authors also evolves, and perhaps the best example of this is the writing of Peter Drucker. In his book *The Practice of Management* (1954) he identified the practice of “Management by Objectives” (which is still the basis today of much of performance management). Years later in 1969 he anticipated the challenges which large corporations would face in the twenty first century in his book *The Age of Discontinuity*.

A lot of criticism can be levelled at the early writers of management for their obsessions with structure and processes (arising from the popular mechanistic/reductionist approaches) at the expense of the human element. Signs that some correction was needed had emerged very early. An example of this was the work done by Elton Mayo in the 1920s in the Hawthorne Experiments (1945). The conclusion he reached about employee motivation challenged Taylor’s theories, not for themselves but rather because the ideas were imposed on workers and did not include input from them – an early argument for emergent rather than prescriptive strategy!

Michael Hammer has acknowledged his own obsession with structure at the expense of people, and followed up his first book *Re-engineering Work* (1990) with *Beyond Re-engineering* (1996) in which he criticised his own previous focus and took a more humanistic view. In the final chapter he wrote:

“It may foster a brutal form of social Darwinism and a perverse modern Calvinism...It may also become confusing and disorienting to work and live in a process-centred world...Will we face spiritual poverty even as we enjoy material plenty? Will never-ending organisational improvements inevitably produce a culture of tension and stress? Will it destroy our humanity?”
(Hammer 1996, p. 256)

This awakening to or becoming aware of the possible impacts of change in environments and mindsets on organisational development has happened to many authors. A prescience of this and one of the most striking examples of a different paradigm was Mary Parker Follett (1918) who wrote about a “*business eco-system*”. This captured exactly today’s modern thinking about the interrelatedness of stakeholders in

organisations. Peter Drucker called her “*the brightest star in the management firmament...striking every chord in what now constitutes the management symphony*”.

Other interesting developments include the work of consultants and the frameworks which most of them used in the 1980s. Foremost among these is the McKinsey’s “Seven-S” framework which is used extensively today to guide management concepts. This was developed by Richard Pascale and the duo of Tom Peters and Robert Waterman while they were with the McKinsey consulting company.

Peters and Waterman went on to write the best-selling management book *In Search of Excellence* (1982) in which they identified the attributes of excellence which highly successful companies shared. Alarming, of the forty three companies which were the subject of the book, two thirds had failed within five years of the book being written! Much more stimulating and durable was the work of Richard Pascale who pursued the idea that the “hard” S factors of the McKinsey model (strategy, structure and systems) had to be balanced by the “soft” S factors or style, shared values, skills and staff. Pascale’s best seller *Excellence. The Art of Japanese Management* (1981) in which this balance is explained, highlighted the difference between American and Japanese management cultures and the Eastern focus on people issues.

Whereas some of the writing on management is applied successfully today by many organisations (a case in point is the work of Michael Porter), much of it is faddish and transitory and engaging enough only to sell books and fill seats on the lecture circuits. Russell Ackoff (1999) described it as a “*plethora of panaceas*”. What seemed necessary was the crisis of the turbulence of the New Economy to arrive before more substantial and sustainable ideas emerged.

One of the origins of the thinking which would inspire and give hope to organisations which were battling with the increased complexity of business lies in the work which was being done by people not even involved with management theories.

One who contributed to this early radical thinking was Alexander Bogdanov, a Russian medical researcher who had formulated the idea of a “*universal science of organisation*” in 1920. Ludwig von Bertalanffy (1933), a theoretical biologist who lived and worked in the middle of the last century, extended this idea in his own studies of ecological macro-systems and evolved and named “*general systems theory*” as a new paradigm of universal principles which are valid for systems in general.

Some of these ideas lay dormant and were not applied immediately to organisational development or management theories, but were resurrected again when Jay Forrester after working for years in computer science and on other systems theories at MIT's Lincoln laboratory made a career change in the 1980s and moved across the campus to the Sloan School of Management. In his new position he applied computer modelling to break new ground in the analysis of social systems. These studies became known as "*systems dynamics*", which is recognised today as part of general systems theory.

Exciting work is also being done on systems theories by other individuals and organisations, notably by Stuart Kaufmann and Brian Arthur at the Sante Fe Institute, the Tavistock Institute and the Centre for Organisational Learning.

The new initiatives laid the foundations for further studies of systems. (The mindset applied was "systems thinking"). Margaret Wheatley (1999, p. ix) called this new way of thinking and understanding (our *Zeitgeist*) the "*New Science*".

The appreciation of the importance of the interrelatedness of components of systems is at the core of explanations which have since been formulated in the writing about systems theory as it is applied to organisational development in times of change, and this new understanding of how organisations are affected by change is especially significant in the new complex business environment of today.

In his book *Strategic Management & Organisational Dynamics* (2000), Ralph Stacey wrote about the stages of development of ideas about systems theories of interaction and traces the theoretical foundations from cybernetic systems, through systems dynamics, open systems theory, non-linear dynamic systems, to complex adaptive systems.

The way in which systems theories impact on the organisational development of companies (and hence on how they are managed) will be commented upon later in this section and of particular interest and relevance to this study are the aspects of systems theories which underpin Peter Senge's contribution to personal learning which go to make up a learning organisation.

With roots in systems dynamics, cognitive and humanist psychology, the notion of organisational learning is acknowledged as an approach with the potential to impact

profoundly on organisational development. Although the theory addresses issues of complexity it still however remains an orthodox perspective on change.

Other views on learning and learning theory are also discussed in a later section, ranging from some of the basic ideas of Winnicott to those of Schön and Argyris. The importance of the participation of diverse groups in learning, of its experiential nature, of reflection and the fact that it is a natural, satisfying process are emphasised.

Finally a review is done of some of the most provocative and exciting writing on systems thinking which provides what has been called rather hopefully “*a new scientific understanding of life*” by Fritjof Capra (2002, p. 71). What makes it attractive is that it sets out to find the interconnectedness of living things and places organisational development and management on another plane.

Capra extended the work of Bogdanov and von Bertalanffy. He challenged the ideas of earlier schools of science (which are largely based on mechanistic, quantifiable models), and replaced them with the holistic awareness of systems thinking. This is epitomised by the titles of some of his books – *The Turning Point* (1982), *Belonging to the Universe* (1991), and *The Web of Life* (1996).

At the centre of his thinking is the issue he addresses so eloquently about using complexity theory to solve some of the most important issues of our time. In this study, his work is referred to in the context of the development of a learning organisation and change.

Roger Lewin and his partner Birute Regine also come to the conclusion that the science of complexity while still in its early stages of being fully understood, has much to contribute towards the understanding of organisational dynamics within companies (2001, p. 6). As did Ralph Stacey (2000), they too promote the idea that organisations are complex adaptive systems. Stacey goes further and defines the interactions which people have in complex adaptive systems (in our case, in companies) as complex responsive processes.

Most management theories are techniques for managing in certain ways. The new science of complexity has led to new theories of business which place people and relationships in dramatic relief, i.e. interactions and relationships become the organising

principle. The opportunities for managers who acknowledge these ideas are exciting. Organisations can now be led in different ways as part of complex responsive processes.

3.2 Definition of key concepts

Most of the issues which were discussed in the previous section and around which this study is built relate to the changes which have taken place in the business environment, and consequently the challenges managers of organisations face today. In general terms the issues are about the understanding of and coping with changes which impact on systems.

In the business environment these changes are complex and this complexity, and the possible responses from managers, are the subjects of the literature which is discussed in the next sub-section.

The key concepts which support these subjects and around which this study is built are **Systems Theories**, the nature of **Change** and **Organisational Learning**. They are obviously related, and are grouped together and described briefly below –

The environment of business is a system and so an understanding of different **Systems Theories** (systemic theories of interaction) is important. Explanations which are given are based on Ralph Stacey's descriptions (2000).

Cybernetics

are systems which constitute themselves as a whole (macro level) and as such have an identity independent of their parts (which in any case are homogenous). Changes in the system take place as a result of negative feedback and the alignment in these systems is always towards equilibrium. Changes to the system come from outside of the system, as the system has no internal capacity to move to a new position or pattern.

Stacey (2000) describes the behaviour of cybernetic systems as “*assuming linear connections between cause and effect and [paying] no attention to possible nonlinearities in the behaviour of a system.*” (p. 142)

Early writers on cybernetics were J Forrester, N Wiener and W Ashby.

Systems Dynamics

explains systems which are also constituted at the macro level and have homogeneous parts but are deemed to be more complex than cybernetic systems. They are represented mathematically in models by non-linear equations. They respond to both negative and positive feedback and are capable of self-organisation. Systems of this nature produce the dynamics of non-equilibrium but cannot of themselves move from one attractor (recognisable pattern) to another. Change comes from outside of the system.

The System Dynamics Society in the USA describes system dynamics as a *“methodology for studying and managing complex feedback systems, such as one finds in business or other social systems”*.

Writers on system dynamics are J Forrester, K Weick, P Senge, and R Stacey.

Open Systems Theory

takes into account the components of the system, and describes systems which move towards positions of equilibrium. The systems adapt to the environment by regulating the boundary of the system. The theory provides understanding of the importance of the interrelationships between subsystems and particularly between technical and social subsystems. It forms the systemic foundations of psychoanalytical perspectives of organisations.

Open systems theory can be described as a “theory of supra systems”. The constituent systems are interrelated but independent.

Writers on open systems theory are L von Bertalanffy, P Kast and F Rosenzweig.

Chaos and Dissipative Structure Theories

are grouped together and are applied to non-linear dynamical systems. Both theories are similar to systems dynamics, however chaos theory acknowledges the possibilities of “strange attractors” which can result in new patterns of behaviour being formed at critical parameter values. Impetus for change comes from outside of the system. Dissipative structure theory acknowledges the amplification which can arise from very small change variations in relationships in the system. These can then change the behaviour of the system and can lead to

the evolution of new attractors. In both cases change can emerge from spontaneous self-organisation at certain critical points.

James Gleick in his book *Chaos* (1988, p. 306) quotes definitions and authors of these theories as:

“The complicated, aperiodic, attracting orbits of certain (usually low-dimensional) dynamical systems” (Philip Holmes 1986, p. 107),

“A kind of order without periodicity” and *“A newly recognised and ubiquitous class of natural phenomena”* (Hao Bai-Lin 1984, p. i), and

“The irregular, unpredictable behaviour of deterministic, non-linear dynamical systems” (Roderick Jensen 1987).

Writers on chaos and dissipative structure theories include E Lorenz, B Mandelbrot, J Gleick, R Stacey, I Prigogine, WB Arthur and S Hawking.

Complex Adaptive Systems Theories

focus on the behaviours of the individual agents of systems. Self organisation from within takes place until change is introduced from outside of the system. New forms emerge dynamically at points of bounded instability (on the edge of chaos). When applied to systems whose components are people, the theories are called complex responsive processes.

Ralph Stacey (2000, p. 276) has described complex adaptive systems as systems consisting:

“...of a large number of agents, each of which behaves according to some set of rules. These rules require the agents to adjust their behaviour to that of other agents. In other words, agents interact with, and adapt to, each other...self-organisation is a bottom up process in which detailed input of the system itself determines what happens”.

Murray Gell-Mann (1994, p. 17), Nobel prizewinner in physics, describes a complex adaptive system as:

“...a system [which] acquires information about its environment and its own interaction with that environment, identifying regularities in that information, condensing these regularities into a kind of ‘schema’, or model, and acting in the real world on the basis of that schema.”

Margaret Wheatley (1999, pp. 87-88) wrote about how:

“Whenever a self-organising system experiences any amplification process, change is at hand. If the amplifications increase to a level where they destabilise the system, the system can no longer remain as it is. At this moment, the system is at a crossroads, standing poised between death and transformation. In science this is known as a bifurcation point.”

Writers on complex adaptive systems include R Stacey, J Holland, S Kauffman, M Waldrop and M Gell-Mann.

The essence of this study is about **change** which is now defined.

Change

which has taken place in society, politics, economics and even in fundamental understanding about life has never taken place as rapidly as it has in the last two decades. And as Donald Schön (1973) has said, as the rate of change increases so does the level of the complexity of the problems which society faces. Post-modernist writers have linked the reactions of change in nature to the way society can respond to change and this link is grounded in the idea that there is “one science of life”. New ideas about evolution, which are based on the concept of “*fitness landscapes*”, developed by Stuart Kauffman (1993, p. 29), have challenged the traditional understandings of how and why changes take place:

“...the very nature of co-evolution is to attain this edge of chaos...At this poised state between order and disorder...we must give up the pretence of long-term prediction.”

Gary Hamel (2000, pp. 4-5) describes these times of change as:

“...an age of upheaval, of tumult, of fortunes made and unmade at head-stopping speed. For change has changed. No longer is it additive. No longer does it move in straight lines. In the twenty-first century, change is discontinuous, abrupt, seditious”,

and the exciting thing is that when change impacts to this extent on organisations opportunities emerge for things to start happening, and, interestingly in the context of this study, Charles Handy (1989, p. 17) wrote that *“change...is another word for growth, another synonym for learning”*.

There are many writers who have addressed this subject. Some of them are S Kauffmann, G Hamel, R Ackoff, J Briggs and F. D Peat, C Handy and R Stacey. Extraordinary ideas have come from F Capra, R Lewin and B Regine, A Battram, M Wheatley and M Waldrop.

The third concept which will be described is that of **Organisational Learning**.

Organisational Learning

has a long history in which learning has taken place in organisations other than educational institutions. Corporations are the ideal environment for experimentation in learning to take place and this has been the case for many years. The original ideas of “experiential learning”, “action learning”, “learning on-the-job”, “communities of learning” and the best marketed idea of the “learning organisation” were all associated with the achievements of companies in corporate learning and change environments.

Organisation learning theory fits into the fields of cybernetics and systems dynamics. (The traditional psychological learning theories are obviously applied within the learning organisation process.)

Peter Senge (1990, p. 3) describes organisations where learning works as:

“...organisations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, where people are continually learning how to learn together”.

Those whose writing will be referred to in this study are K Weick, C Argyris, D Schön, P Senge, R Bawden, A de Geus, P Wack and A Kleiner.

3.3 Discussion of literature read

3.3.1 Systems theories and the problem of the conventional approach

The modern environment of business is a good example of complex systems undergoing change. Interpretation of how managers should behave and respond, and their contribution to business solutions can now be derived from theories of systems and organisational dynamics.

The traditional understanding of the environment of business is that of a predictable, linear system - a combination of cybernetic and systems dynamics, displaying features first described by Jay Forrester. Placing this discipline firmly in the orthodox school of systems theories has historically determined the understanding of the requirements for the control of and participation in the system and the role played by management.

This orthodox view, given its history of cause and effect in natural law (Newton, Bacon, Descartes), has evolved somewhat up to the present to a stable equilibrium paradigm. Popular writing on management describes "attributes of excellence" for organisations which can also be applied to individuals. So the sought-after competencies are motivation, value systems, belief systems, leadership, knowledge of organisation politics, and the ability to work in teams (Peters and Waterman – 1982). The approach, however, is still strongly rooted in cognitivist assumptions of a cybernetic system.

This is entirely understandable as a great deal of popular thinking about systems theories assumes a system (organisation or company) moving over time to a predictable, stable outcome. The traditional interpretation of the demands of management endorses this view, being linked always to anticipated or desired outcomes, time-frames and budgets.

The typical training of managers is based on the assumption that they, the managers, stand outside of the developing situation, that there are established sets of rules, cognitive maps or mental models which must be learnt and applied in business situations which are basic models of strategic choice.

Training to understand organisations, analyse situations and plan for the future is based on SWOT analyses, Porter's 5 Forces, McKinsey's Seven Ss and the Boston Consulting Group approach.

Some recognition in management training that there is not "one best way" manifests itself in the development of contingency theory, which shows that success is not dependent on a simple set of factors, but depends upon

- the environment
- the size of the organisation
- the technology it employs
- the history of the organisation
- the expectation of people involved in or with the organisation.

Henry Mintzberg (1989) extended this idea of contingency, and based on his writing, it is argued that successful management flows from designing an organisation and its strategies (and its desired management attributes) from a limited number of archetypes. Hence, based on this assumption, the attributes of successful managers can be identified fairly easily, and will then be taught to complement the analytical (Business School) tools mentioned above.

It is alarming to think that a lot of what has been mentioned so far, which can be referred to as "technical rationality", is based on the writing of Taylor. His scientific management approach assumes a stable dynamic, with members of the organisation (those being managed) close to certainty and agreement. Consequently most strategic plans which are used today (and other management interventions) are based on these or similar assumptions.

Really significant advances in systems theories have not always been accompanied by similar developments in the training of managers. Recognition has been given to the impacts of personalities in management, but the assumption is still that when different temperaments have been identified, management of the team now becomes a simple form of systems dynamics closely linked once more to cybernetic thinking. Similarly even though the ideas of learning organisations became known and popular following the work of Peter Sengè (1990), the consequences of the new understandings of systems theories which relate to cognitive and humanistic psychology have not been assimilated into new forms of management training.

The fact of the matter is that outcomes of systems undergoing change in complex environments of business are not predictable and cannot be easily controlled. The more complex the business environment the more likely it is that the traditional approaches will be found to be inadequate.

Therefore, paradigm shifts are required to be able to learn and understand the real nature of modern business and how it can be managed and what the role of the manager is, which must take into account the latest thinking on systems theories.

3.3.2 The development of systems theories

In formulating a new and more relevant approach to identify management's role to successfully run businesses it is important to understand more modern thinking on organisational development.

Orthodox thinking, which originates from strategic choice (cybernetic and cognitivist), evolved to ideas about the learning organisation (cognitivist and humanist) and to open systems theory and psychoanalytical perspectives. More recently radical thinking has broken the paradigms of these orthodox approaches, and chaos theory, theories of dissipative structures and complex adaptive systems need to be considered. Interestingly psychological aspects of organisation dynamics too have been re-thought and are now being discussed in terms of relationship psychology and complex responsive processes.

Both more modern orthodox theories and radical understandings of systems theories must be considered in trying to identify the desired profile of the modern manager.

Mintzberg and Waters (as cited in Stacey 2000, pp. 78-79) in 1985 identified eight aspects of management with the following characteristics:

- Planned - managers plan, control and monitor outcomes
- Entrepreneurial - single leaders "show" the way
- Ideological - "visions" give view of future and contain collective beliefs
- Umbrella - broad goals (including boundaries) set and the organisation determines the detail
- Process - emphasis is placed on control; content comes from the organisation
- Unconnected - strategy flows from groups in the organisation

- Consensus - strategies emerge without prior organisational intent
- Imposed - the environment dictates what is to come.

The first five of the above imply that the manager knows where the organisation is going and how it will react to the environment. In the case of complex organisations this cannot be the case. The last three mentioned, which include recognition of the cognitive and humanist roles, contain elements of the characteristics of learning organisations, and recognise the parts played by individuals, and the emergent nature of organisational development.

Sengé (1990) argued that organisations which succeed do so because they recognise that in complex systems changes are not predictable and managers have to cope with states of non-linearity and non-equilibrium. He introduced the idea of “*loosely coupled systems*” in which the impacts of action on systems are unpredictable and are only recognised long after the impact has taken place.

The Beer Game which was developed at MIT in the 1960s demonstrates that outcomes of complex (even relatively less complex) systems are significantly dependent on the relationships and communications channels between players in the system.

Karl Weick (as cited in Stacey 2000, p. 153) who interestingly wrote mainly for technical managers in what he called “*high reliability organisations*” recognised the role of groups in organisations and the idea of a “*shared memory*”; which resulted from feedback systems in organisations (so-called “*self-designing systems*”) which are “*loosely coupled*”.

He suggested that although traditional companies tried to achieve tightly coupled organisations which are bound together by hierarchies, procedures and company rules, what in fact was needed was for them to become loosely coupled, self-designing organisations which would be flexible enough to meet the demands of unexpected futures.

Weick (1977) wrote about the challenges and changes facing managers in organisations making this transition, and these included:

- Improvisation replacing forecasts
- Focusing on opportunities rather than constraints

- Finding new solutions
- Cultivating impermanence rather than permanence
- Valuing argument above consensus
- Relying on diverse measures of performance rather than accounting systems
- Encouraging doubt rather than removing it
- Continuously searching rather than looking for final solutions
- Seeking contradictions rather than discouraging them.

Obviously the above aspects of management are anathema to the traditionalists, and it is probably true that if these approaches are adopted results will be achieved less efficiently. However, this is what is required of management which recognises and caters for complex situations.

The approaches described above are non-traditional, and do not seek to fit or adapt to their environments. Instead an "edge" of uncertainty is developed, in which creativity from those in the organisation is expected and encouraged.

Gary Hamel and C.K. Prahalad (1989) studied a number of global companies and found that many of the less successful were those which followed strategic choice prescriptions (cybernetic) to seek and maintain strategic fit with their environments. They required conformity in behaviour of staff and were more concerned with output than with personal growth. They could not cope well with change. The more successful companies on the other hand leveraged their existing resources, that is used what they had in new and innovative ways to reach for seemingly unattainable goals, thus building up new and exciting core competencies, competencies which equipped the companies better to survive and succeed in unpredictable futures. The guiding process was a shared strategic intent and the route was accelerated organisational learning. Stretch goals lead to organisations renewing and transforming themselves.

The works of both Weick and Hamel and Prahalad give good insight into alternative requirements for modern management, whereby elements of uncertainty which of necessity exist in complex systems are used to promote hitherto unrecognised abilities of staff.

The conditions in which people learn and grow and a psychological interpretation of this were part of the writing of Donald Winnicott (1971). He explained that children are

given the best chances to learn when the balance between security and insecurity is carefully maintained. He called this position one of "*good enough holding*" and this is the situation when children develop the confidence to go beyond what they know and feel confident about, and start to explore worlds beyond the known. The challenge to the modern manager is to provide opportunities for learning and growth in organisations which offer conditions of "*good enough holding*".

All of the above reflect fairly orthodox thinking in systems theories, but a great deal is new in terms of how it can be applied to managing. Accepting these ideas would in itself lead to significant changes in understanding of management requirements and of the related competencies, but this would not be enough.

It is obvious from the above that dramatic changes must be made to the way modern managers need to be trained.

Less orthodox, and what can be referred to as radical concepts of systems theories which are significantly different from the theories presented so far, are the aspects of systems with the ability to self-organise and to produce unique outcomes. This is contrary to most established and practiced management beliefs, but amazingly "*systems can indeed evolve order out of chaos*" and "*agents interacting in a system can produce, not anarchy, but creative new outcomes*". (Stacey 2000, pp. 294-295)

This state of self-organising in what are called complex adaptive systems can produce the most creative outcomes, in which the developments are determined at the micro level by the components of the system. This system depends on connectivity between agents and diversity of types of agents. When the connectivity (communication) between agents is high, and when the diversity is significant, the system displays the greatest capacity to produce new and unanticipated results and is said to be "on the edge of chaos". A lot has been written – and has mostly been misunderstood – about this state, and this idea "on the edge of chaos" and what it means to modern management are explored further in a later sub-section.

3.3.3 The nature and impact of modern turbulence

The very fact that arguments today abound about the emergence of a "new order" of society which challenges both the modernist view of a reasonable, rational, logical, orderly world, which is underpinned by assumptions that history is meaningful and that

progress is being made towards a desired state of equilibrium, and how the “new order” also challenges the post-modernist view of a post-industrial society which is defined by consumerism, knowledge and information, commodity-thinking and superficiality, is itself unsettling and is indicative of the turbulence faced by modern society.

The argument goes to the core of intellectual development through the ages and is further complicated by a Western obsession to comprehend completely, and to control. This challenge in the way the Western world understands the fundamentals of what life is about and how to cope, lies at the heart of the uncertainty.

More immediately if we accept the Lev Landau description of turbulence as “*a piling up of competing rhythms. When more energy comes into the system... new frequencies being one at a time each incompatible with the last...*” (Landau as cited in Gleick 1988, pp. 123-124) then the challenges to management have never been as great as they are today.

Change comes in various forms and creates conditions which impact on the status quo of any system or organisation. There are many examples of these conditions which Arthur Battram, a writer on complexity, has described simply as systems responding to change – moving from an orderly, stable, (sometimes sterile and lacking in variety) status called **Stasis**; to one of cybernetic (cause and predictable outcome, with some variety) status called **Order**; through a status called **Complexity**; to a final status called **Chaos**. Whereas the impact of turbulence as it is experienced today in the complex environments of business and society, can be negative and destructive and can lead to chaos, there is a window of opportunity before Chaos, which Battram describes as the zone “*in which possibilities open up,*” where exciting things can happen. This is the zone of Complexity. (Battram 1998, pp. 139-140)

These possibilities may be used positively and constructively in systems which are open and responsive to change, and Forrester (1961) proposed that the responses of these systems to any form of interference (e.g. turbulence) are fundamental to the future of that system, in either positive or negative ways:

In Stacey’s (2000, p. 368) definition of complex adaptive systems he describes how the components of the system adjust their behaviour to that of other components, and can respond and react to forms of change. When the components of the system are humans, the responses are different (more complex, often negotiated, involving conversation, responsive in different ways), and constitute a special case of complex adaptive systems

called complex responsive processes. And it is in this realm where turbulence impacts on social systems (organisations) in which complex responsive processes take place, that “*possibilities open up*” for leadership to play new and exciting roles.

3.3.4 On the edge of chaos

The implications of applying systems theories to organisational life which is affected by modern day turbulence, can be very exciting. What is needed is to consciously move from the comfort zone of Order (with all the trappings of scientifically controlling our worlds, prescription, hyper-planning, avoiding uncertainties) and to celebrate and embrace and grow from the opportunities which are presented by complexity.

John Briggs and F David Peat (1999, p. 9) describe chaos as a fundamental force in the universe. Chaos which “*reveals patterns in phenomena previously thought to be random*” (Stacey 2000, p. 259), is characterised by unpredictable behaviour in that systems apparently organise themselves to produce new patterns which are determined by periodic or cyclical (strange) attractors. At these points systems are paradoxically stable and unstable and can reveal behaviours which are unpredictable but do have “*hidden pattern*”. (Stacey 2000, p. 260)

It is in this state (of high complexity, commonly known as being on the edge of chaos) that exciting possibilities for things to happen differently occur and for management to develop and practise in new and different ways.

3.3.5 From Descartes to systems thinking

Cartesian science was based on the belief that in all systems the behaviour of the whole could be best understood by understanding the properties of the parts, and that this understanding is objective.

In systems thinking however this has been reversed, and Fritjof Capra (1996) explains that the properties of the parts are not intrinsic, but have significance only in terms of the whole. Systems thinking is “*contextual*” thinking, and as such involves a shift from objects to relationships. He states that:

*“In the mechanistic view, the world is a collection of objects.
These of course, interact with one another, and hence there are*

relationships between them. But the relationships are secondary...

In the systems view, we realise that the objects themselves are networks of relationships, embedded in larger networks. For the systems thinker the relationships are primary."

(Capra 1996, p. 37)

This perception of the living world as a "network of relationships" is a key characteristic in understanding scientific knowledge – taking the understanding to a philosophical realm. Capra called it "*vernetztes Denken*." (1996, p. 38) Descartes would not be impressed. In *Discourse on Method* he wrote: "*In so far as [sciences] borrow their principles from philosophy, I considered that nothing solid could be build on such shifting foundations.*" Werner Heisenberg replied three hundred years later in *Physics and Philosophy* that the foundations of classical physics, that is, foundations of the very edifice Descartes had built, were shifting (as cited in Capra 1996, p. 38).

Capra applies these ideas of systems thinking also to organisational development.

Ways of understanding organisations were first explored as early as in the 1920s, and as has been mentioned previously the Russian medical researcher Alexander Bogdanov (1920) formulated the idea of a "*universal science of organisation*". This he explained to be the "*totality of connections among systemic elements*", called "*patterns of organisations*". He believed that changes to organisations came about through the tension between crisis and transformation but although this concept strikes a strong chord today in understanding systems, his work was largely not recognised. Instead Ludwig von Bertalanffy is acknowledged as the father of thinking which recognises organisations as living systems. What this systems thinking challenges fundamentally is the nineteenth century view that the universe evolves from disorder to order. His ideas support Bogdanov's tension theory, but he adds the concept that a healthy system can exist in a state far from equilibrium in a "*steady state characterised by continual flow and change*," or "*in a state of a dynamic balance*" (von Bertalanffy 1933).

When this systemic concept is applied to living systems it looks beyond the **structures** of the system; it recognises the **relationships** between the components of the system (the pattern), and identifies what has been beautifully called the "**life process**". And in living systems the patterns (relationships) are such that the systems can reproduce themselves

(autopoiesis), and the embodiment of this ability of living systems (the life process) is cognition – the process of knowing (Capra 1996, p. 160).

This systems theory of cognition challenges the Cartesian split between mind and matter and as such now places the mind, the brain and thinking in a relationship. The new concept of cognition has special significance for what new management now means, and will be explored further in the next sub-section.

3.3.6 The scientific argument

Roger Lewin and Birute Regine (2001, p. 3) researched the response of managers to the turbulence of modern business. Too often they found resistance to real change, and an obsession to control. This is based on the old assumption of scientific management and a machine model of the world.

Instead of tools which organisations think they need to cope with change, Lewin and Regine concluded that what is needed is a paradigm shift from leaders: a shift which fundamentally changes their understanding of the world.

These tools (re-engineering, rightsizing, management by objectives, managing by walking around, total quality management, kaizen) have added nothing which is truly sustainable to organisational development. Jim Collins has also written about the failures which are associated with “flavour of the month” programmes meant to bring about revolutionary changes (2001), and Michael Jackson refers to the failure of “quick-fix panaceas ” which fail because they do not take into account the “big picture” (2003), both underlying the importance of managers developing a different mindset.

The challenge which leaders now face is to “*understand and work with the deep nature of organisations*” (Lewin & Regine 2001, p. 7), and at the heart of this challenge lie the issues of structures, patterns and processes, and the binding agent of cognition.

In searching for sustainable answers to the question of how to manage in the New Economy (since the mid-1980s) management theorists have now started to consider paradigm changes. So today, focus has shifted in business to new structures – “*the community of human beings that is business*” (Arie de Geus, as cited in Lewin & Regine 2001, p. 12), to new patterns of relationships – “*the collective soul of the organisation*”

(Lewin & Regine 2001, p. 15), and to new processes (recognising new and different ways for organisations and those in them to grow).

The emergence of the new science of complexity has been validated in the work which is being done in biology. Humberto Maturana and Francisco Varela (1992) have applied the systems theory of life to studies of the cell and immune systems. Their conclusions called the “Santiago theory of cognition”, are that the immune system is an autonomous network which is responsible for the body’s molecular identity; that is, it controls and regulates an organism’s cellular and molecular repertoire! And this regulatory function is part of the organism’s cognition, the process of knowing and organising.

Not only do these theories seriously challenge traditional scientific thinking in many ways, they also justify an approach to organisational development (and that of management and leadership) which goes way beyond the faddish approaches which are being applied so desperately to manage the current turbulence in organisations.

3.3.7 The process of change

Many laudable attempts have been made to equip and understand management and leadership in non-traditional ways. Some of the earliest writing anticipated the changes to organisations which, as we entered the 21st century, were to become so important. One of the earliest writers was Mary Parker Follet who has been mentioned previously and who has been heralded posthumously as a visionary genius. Her concept (1918) of a “*business eco-system*” was one of the first expressions of the new paradigms of business thinking. One significant quote she made (couched in rather 1920s-archaic language) is “*the ablest business man...looks at an ‘environmental complex’ [and] sees the solution of his problem depending on the interacting of the elements of that complex*”.

Another writer Margaret Wheatley makes an almost impassioned plea for change. She describes the results of her own journey and experience:

“I move differently in the world these days since travelling in the realms of the new science” (1990, p. 171), and

“...we would do better to attend more carefully to the process by which we create our plans and intentions. We need to see these plans, standards, organisation charts not as objects that we complete, but as processes...” (1990, p. 155), and

“...what was also being asked of us, was that we change our thinking at the most fundamental level, that of our world view”. (1990, p. 171)

Even popular writers have stressed the importance of new and different approaches to managing being required – Peter Drucker (1969) calls businesses “*social communities*”, and Tom Peters often challenges managers to “*change or die*”.

The call for a change of paradigm is also made by other writers –

“So outstanding practitioners are not said to have more professional knowledge than others but more ‘wisdom’, ‘talent’, ‘intuition’ or ‘artistry’.” (Donald Schön 1987, p. 13)

“...the kinds of artistry essential to competence in the indeterminate zones of practice.” (Donald Schön 1987, p. 18)

“...organisations where people continually expand their capacity to create the results they desire, where new and expansive patterns of thinking are nurtured, where collective aspirations are set free, and where people are continually learning to see the whole together.” (Peter Senge 1990, p. 3)

“Companies are actually living organisms, not machines. That might explain why it’s so difficult for us to succeed in our efforts to produce change. Perhaps treating companies like machines keeps them from changing or makes changing them much more difficult. We keep bringing in the mechanics...when what we need are gardeners. We keep trying to drive change... when what we need to do is cultivate change.”

(Peter Senge 1999, p. 3)

Writers with diverse (Eastern and Western) backgrounds concur on what the challenges to change require –

“...the discipline of seeing through events to the invisible processes that shape them [and] ...learning to see is the foundation of all disciplines.” (Debashis Chatterjee 1998, p. 2)

“Yet in the age of revolution it is not knowledge that produces new wealth, but insight – insight into opportunities for

discontinuous innovation. You must become your own seer.”
(Gary Hamel 2000, p. 13)

At the heart of all this writing about new management in turbulent environments is the question of our own cognitive complexity. Our abilities to reflect and impact on our own values, wisdom and knowledge determine who we are and how we will lead.

Senge (1990, p. 7) called this ability “*personal mastery*” and described it as “*the process of continually deepening one’s personal vision, focussing energy, developing patience and seeing reality objectively.*” It is linked to spiritual foundations, and is a “*function of the quality of our seeing*” (Chatterjee 1998, p. 2) called the Sanskrit word “*darshan*”, which means “to see, to reflect and to have faith”.

More especially in times of change the dynamics of the complex networks of business are determined by relationships and processes in the system, and the skill of the manager/leader is to look beyond the structures, to be aware of and understand the relationships, and to gently and sensitively guide the processes.

3.3.8 Organisational learning

Theories about Organisational Learning have a long history which started with the development of ideas about experiential learning in the 1930s. These theories form part of some of the most modern thinking about complexity and change in organisations.

Art Kleiner was one of those who worked for Royal Dutch Shell. He compiled the original timeline for *The Dance of Change* (Senge et al 1999) about the evolution of the theory of organisational learning from which the following is derived:

“1938: In his book ‘Experience and Education,’ John Dewey publicizes the concept of experiential learning as an ongoing cycle of activity.

1940: Scottish psychologist Kenneth Craik coins the term ‘mental models’.

1946: Kurt Lewin proposes the idea of a ‘creative tension’ between personal vision and a sense of reality.

1956: Jay Forrester begins developing 'system dynamics'.

1960: 'The Human Side of Enterprise,' by Douglas McGregor, is published.

1961: Jay Forrester publishes 'Industrial Dynamics' in which system dynamics is applied to corporations.

1970: Chris Argyris and Donald Schön begin work on 'action science,' the study of how espoused values clash with the values that underlie real actions.

1972: 'The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind,' by Donella Meadows and Dennis Meadows, is published. The book draws on Forrester's theories about system dynamics.

1974: 'Theory in Practice' by Chris Argyris and Donald Schön is published.

1982: Pierre Wack, scenario planner at Royal Dutch Shell, spends a sabbatical at Harvard Business School and writes two articles about scenario planning as a learning activity.

1984: Peter Senge, Arie de Geus, Hanover Insurance CEO Bill O'Brien, Analog Devices CEO Ray Stata, and other executive leaders form a learning-organisation study group, which meets regularly at MIT.

1988: Arie de Geus publishes his ideas in a key Harvard Business Review article called 'Planning as Learning'.

1989: Oxford University management scholar Bill Isaacs, an associate of quantum physicist David Bohm, introduces Senge to the concept of dialogue as a process for building team capability.

1989: *'The Age of Unreason,'* by Charles Handy, is published, in which he describes the era of rapid discontinuous change. Change, he states, is synonymous with learning.

1989: *The Centre for Organisational Learning* is formed at MIT, with Peter Senge as director and with Ed Schein, Chris Argyris, Arie de Geus, Ray Stata, and Bill O'Brien as key advisers.

1990: *'The Fifth Discipline,'* by Peter Senge is published. The book draws on many influences: system dynamics, 'personal mastery' (based on the concept of creative tension), 'mental models' (based on Wack's and Argyris's work), 'shared vision' and 'team learning' (based on David Bohm's concepts).

1993: Harvard University professor David Garvin publishes an article on organisational learning in the *Harvard Business Review*, arguing that only learning that can be measure will be useful to managers.

1995: Working with Dee Hock, the Centre for Organisational Learning begins a two-year process of building an ambitious international consortium called the *Society for Organisational Learning*, with Peter Senge as chairman.

1997: *'The Living Company,'* by Arie de Geus, is published, his contention being that companies should be regarded as living entities.

1999: *'The Dance of Change,'* by Peter Senge and others is published, describing the 'ten challenges of profound change'."

This history was obviously strongly influenced by the relationships Kleiner had in the Centre for Organisational Learning. These perspectives which chronicled the developments of organisational learning and others which are related will be discussed in this section.

Over a period of sixty years common threads have run through the writing and through the events which occurred in relation to organisational learning and a conclusion which is reached is that learning is deeply personal, can emerge as a part of processes in

companies, and, as an experiential team activity, is central to positive change which occurs in organisations.

The popularity and acceptance of the idea of a “learning organisation” stems from a lot of what has been covered in previous sections, namely that the complex business environments of today demand change, and that change is accommodated best by organisations in which continuous learning is taking place. Richard Bawden [no date] from the international strategic planning firm Global Business Network (GBN) Australia writing in the *Research Manual for Leadership and Change* describes the situation as follows:

“The search for such emergent properties of learning systems is the crucial element in any organisation’s abilities to deal with the turbulent environments of today. Strategies for the development of organisations’ learning systems often challenge the TQM orthodoxy of incremental change: learning systems thrive on chaos, as they seek not to stabilise change but to evolve with it.” (p. 20)

Theories of learning which are an important part of organisational learning have undergone dramatic changes from the original concept of the part experience plays in education (John Dewey 1938) and how group dynamics can be used to clarify and achieve desired common goals (Kurt Lewin 1947), to today’s ideas of learning in complex environments.

One of the most significant changes was a shift in the 1960s in the understanding of human behaviour, from the behavioural, Pavlovian view of BF Skinner (1947) called “*reductionism*”, to the complex non-reductionist perspective which led to experiential learning. One of the contributors to the non-reductionist theory of learning was Abraham Maslow, who has been mentioned already. He concentrated on a humanist approach and how, as Carl Rogers described (1961) “*learners attempt to take control of their own life processes*”.

In many ways learning theories developed in parallel to the development of systems theories, and Rogers built his theories of human nature (which were based on Freud) around the idea of a single “*force of life*” (pure systems thinking) which he called “*the actualising tendency*”.

Chris Argyris, one of the more recent learning theorists, explored what impact formal organisational structures, control systems and management have on individuals, and how they respond and adapt to them. For twenty years he worked with another remarkable person Donald Schön, when the two of them developed theory and practice of learning, and in particular of individual and organisational learning (Argyris & Schön 1978). Their focus was on human reasoning and not on the reductionist's focus on human behaviour.

One of the bases for Argyris' work is the importance to people of the awareness of their own mental models or mental maps which form their behaviours and beliefs. Although most people are not aware of these maps, they in fact determine the way people act, rather than what people say (or may think) they believe. This distinction between "theories-in-use" and "espoused theories" (Argyris & Schön 1974) is an important one as greater effectiveness in performance is produced when there is near congruence or at least a clear understanding of the differences between the two.

Elements of cause-and-effect (and cybernetic systems understanding) are also present in what Argyris and Schön (1978) have termed "single-loop learning". In this case learning takes place only with respect to what corrective action is necessary to achieve a pre-determined goal. "Double-loop learning" on the other hand can lead to a fundamental questioning of goals. Obviously in the "century of complexity" (and during all times of discontinuous change) learning which questions fundamentals and can lead to a framing of new scenarios and strategies is essential:

"When the error detected and corrected permits the organisation to carry on its present policies to achieve its present objectives, then that error-and-correction process is single-loop learning. Single-loop learning is like a thermostat that learns when it is too hot or too cold and turns the heat on or off. The thermostat can perform this task because it can receive information (the temperature of the room) and take corrective action. Double-loop learning occurs when error is detected and corrected in ways that involve the modification of an organisation's underlying norms, policies and objectives." (Argyris & Schön 1978, pp. 2-3)

Argyris (1990) coined the phrase "skilled incompetents" – managers who are expert at pursuing prescribed company goals, whatever or however wrong they are.

While efficient and expert pursuit of goals or strategies in an orderly, predictable business environment is good, the unquestioning pursuit of goals which are affected by uncertainty and complexity is very dangerous. Double-loop learning allows people to question not only these goals, but also their own mental models.

Although Argyris and Schön worked together on double-loop and organisational learning, Argyris' focus was more on organisational development and management; Donald Schön's was on learning systems and what he termed "reflection-in-action". Both however agreed that organisational learning is about individual members of organisations constantly questioning and getting to know themselves and the organisations of which they are part. They wrote:

"Hence, our inquiry into organisational learning must concern itself not with static entities called organisations, but with an active process of organising which is, at root, a cognitive exercise. Individual members are continually engaged in attempting to know the organisation, and to know themselves in the context of the organisation. At the same time, their continuing efforts to know and to test their knowledge represent the object of their inquiry. Organising is reflexive inquiry..."

(Argyris & Schön 1978, pp. 16-17)

People questioning and constructing mental maps (their own and those of organisations) is what being a learning organisation is all about. For this to occur, claim Argyris and Schön (1978, p. 201) "*learning agents, discoveries, inventions and evaluations must be embedded in organisation learning*".

Schön was a pragmatist whose ideas were influenced by the writing of John Dewey (1938) on the role of experience in education, and the theory of enquiry. The pragmatism which is reflected in his writing may have been formed during the years he spent with the consulting company Arthur D. Little Inc. and the National Bureau of Standards at the US Department of Commerce!

His contribution to organisational learning (beyond what has been mentioned already about the work he did with Argyris) began when he wrote *Beyond the Stable State* in 1973. The main point he made was that change is fundamental to life (in 1973!) and that social systems must develop to adapt to these changes. This was a very similar

conclusion to that reached by Senge, and Schön named the organisation in transition a “learning society”.

In his book *Beyond the Stable State* he wrote:

“The loss of the stable state means that our society and all of its institutions are in continuous processes of transformation. We cannot expect new stable states that will endure for our own lifetimes.

We must learn to understand, guide, influence and manage these transformations. We must make the capacity for undertaking them integral to ourselves and to our institutions.

We must, in other words, become adept at learning. We must become able not only to transform our institutions, in response to changing situations and requirements; we must invent and develop institutions which are ‘learning systems’, that is to say, systems capable of bringing about their own continuing transformation.

The task which the loss of the stable state makes imperative, for the person, for our institutions, for our society as a whole, is to learn about learning.

What is the nature of the process by which organisations, institutions and societies transform themselves?

What are the characteristics of effective learning systems?

What are the forms and limits of knowledge that can operate within processes of social learning?

What demands are made on a person who engages in this kind of learning?” (Schön 1973, pp. 28-29)

The deep division which we have encountered several times before in the literature review is between technical rationality (characterised by what Schön called “dynamic conservatism”) and the necessity for organisations and the people in them to transform themselves.

This transformation, Schön claimed, would not come from the centre of an organisation (top down), but rather from the periphery by replacing the traditional hierarchies by responsive networks.

The growing interest in learning as a vehicle for organisational change gave rise to studies by many organisations as was outlined by Kleiner, and particularly to work done at the Massachusetts Institute of Technology. Three writers in particular contributed to the body of knowledge about learning organisations and made the subject popular – Pierre Wack, Arie de Geus and Peter Senge.

Wack and de Geus (and Kleiner) were part of the scenario planning team at Royal Dutch Shell which was confronted by the unprecedented oil crisis in the 1970s. This as has been mentioned was one of the major incidents which heralded the coming of the age of complexity in the 1980s.

Arie de Geus believed that accelerated organisational learning was an integrating concept for managers in times of turbulence. His contention was simple: companies are living entities that can survive and thrive indefinitely. The preconditions however, which he outlined in his book *“The Living Company”* (1997) were that:

- They must be sensitive to their environments (to sample, learn and adapt to what is going on around them)
- They must have a strong sense of identity (a shared community)
- They must be decentralised to encourage innovation
- They must grow from within.

De Geus described how companies can learn as:

“...the process whereby management teams change their shared mental models of the company, their markets and their competitors. For this reason we think of planning as learning and of corporate planning as institutional learning.” (1997, pp. 8-9)

This view incidentally was shared by the renowned development psychologist Jean Piaget (1896-1980) who had also concluded that decision-taking was fundamentally a learning process.

Through his own work Pierre Wack came to the conclusion that people (managers) needed to “reperceive” – as indicated in the title of his book *The Gentle Art of Reperceiving* (1985). He was interested in and studied the mindset of decision makers. The origin of this interest was the work the scenario team had done at Royal Dutch Shell.

Wack was the original innovator of the company’s scenario process in which the main purpose of planning was to change the mental maps of managers, and to develop shared mental models (world views). He believed that both scenarios and management styles were products of a world view.

De Geus and Wack had long careers in corporations (mainly Royal Dutch Shell), and both spent significant periods at MIT’s Sloan School of Management. There they worked with Peter Senge who in 1990 popularised the idea of a “learning organisation” in his book *The Fifth Discipline*.

Stacey (2000, p. 20) described a learning organisation as an “*organisation that evolves through the learning process that takes place within it.*” He suggested that in organisational learning the systems theory provided is systems dynamics, and the psychological theory is cognitivist and humanistic psychology.

Peter Senge’s work is a synthesis of a lot of what has already been mentioned about organisational learning, in which he draws from (and acknowledges) the contributions which have been made by Argyris and Schön and by his colleagues at MIT, particularly Arie de Geus and Art Kleiner.

He also drew extensively from the seminal work of David Bohm (1985), and from the practical experiences of Bill O’Brien of Hanover Insurance, Ed Simon of Herman Miller and Ray Stata of Analog Devices.

What Senge succeeded in doing better than those who wrote about organisational learning before him, was to link modern ideas of systems dynamics and organisational development in his theory of a learning organisation. Stacey (2000, p. 167) describes his contribution as follows:

“One of the most influential expositions of the concept of a learning organisation is that given by Senge (1990). Senge believes that an organisation excels when it is able to tap the

commitment and capacity of its members to learn. He sees this capacity as intrinsic to human nature and he locates it in the individual, although he does see such learning as occurring when individuals experience profound teamwork. He identifies five disciplines required for an organisation that can truly learn”.

Senge has described himself as an idealist pragmatist. His writing about organisational learning can be criticised as utopian thinking, but it does challenge much of the traditional thinking on organisational development in which simplistic frameworks are applied to complex problems. By placing organisational development in a context of systems thinking, Senge sees organisations as a dynamic process. He addresses the issue that while people best learn from their experiences they very seldom see the consequences of their own decisions which are made in business. He mentions typical cases of cost savings measures being applied to research and development or advertising which bring almost immediately improved financial results. This feedback is then amplified and reinforced, which can lead to disastrous consequences. (He incidentally used the Beer Game which was developed at MIT with many managers from all over the world to illustrate this point.)

What he calls for is an appreciation of systems thinking which he says allows one to see the big picture:

“Systems thinking is a conceptual framework, a body of knowledge and tools that has been developed over the past fifty years, to make the full patterns clearer, and to help us to see how to change them effectively.” (Senge 1990, p. 7)

In *The Fifth Discipline* he makes “**systems thinking**” the conceptual cornerstone to integrate four other disciplines and uses it to examine the relationships between these disciplines and to comprehend and address the whole.

While all people can learn, and while learning is at the heart of what it is to be human, people need structures and tools and guiding ideas of how to learn. Much of traditional learning is “survival” or “adaptive” learning, whereas what is needed in the complex environments of today’s business is “generative” learning.

Senge (1990, p. 69) challenges managers in learning organisations to become agents of change to set up new structures and systems. To do this they need to develop new mindsets. All of the five disciplines which he describes are:

“...concerned with a shift of mind from seeing parts to seeing wholes, from seeing people as helpless reactors to seeing them as active participants in shaping their reality, from reacting to the present to creating the future. Without systems thinking, there is neither the incentive nor the means to integrate the learning disciplines once they have come into practice.”

He describes “**personal mastery**” as a special kind of proficiency:

“People with a high level of personal mastery live in a continual learning mode. They never ‘arrive’. Sometimes, language, such as the term ‘personal mastery’ creates a misleading sense of definiteness, of black and white. But personal mastery is not something you possess. It is a process. It is a lifelong discipline. People with a high level of personal mastery are acutely aware of their ignorance, their incompetence, their growth areas. And they are deeply self-confident. Paradoxical? Only for those who do not see the ‘journey is the reward’.” (Senge 1990, p. 142)

This echoes what has been written before about complexity theory and the tension which is created by lack of equilibrium, and the creativity which is demanded in times of change and uncertainty, and how this tension between vision and reality can be used in exciting ways.

“Personal mastery” is closely related to the next discipline “**mental models**” which is about the process of questioning and changing world views. Senge describes these as:

“...deeply ingrained assumptions, generalisation ... that influence how we take action...working with mental models starts with turning the mirror inward: learning to unearth our internal pictures of the world, to bring them to surface and hold them rigorously to scrutiny.”

(Senge 1990, pp. 8-9)

The discipline is central to the concept of organisational learning. Schön called mental models the professional's "repertoire", and as is the case with all repertoires for them to remain relevant they need to be evaluated and updated regularly.

The concept of mental models is particularly pertinent to learning because change in mind-sets lies at the core of the learning which is needed from both individuals and organisations in times of turbulence. The changing of mental models begins with the questioning of the "*deeply ingrained assumptions*" (Senge 1990, p. 8) (reperceiving) and challenges the awareness and the ability of managers to reason objectively and their capacity to reflect in and on action.

The skills which managers need to change mental models include the abilities to understand how they draw (sometimes incorrect) conclusions; to say what they normally would not; to be totally honest with themselves, and to recognise the differences between their espoused theories and their theories-in-use. Developing these skills is the beginning of real life-changing learning.

Senge concurs with traditional management thinking about the importance of organisations having "visions" or "mission statements". His view of the discipline of "**building a shared vision**" however is different from the way it is normally done:

"When there is a genuine vision (as opposed to the all-too-familiar 'vision statement'), people excel and learn, not because they are told to do so, but because they want to. But many leaders have personal visions that never get translated into shared visions that galvanise and organisation...The practice of a shared vision involves the skills of unearthing shared 'pictures of the future' that foster genuine commitment and enrollment rather than compliance."

(Senge 1990, p. 9)

The shared vision is one which is derived from shared values and it provides the focus or target for development.

"**Team learning**" Senge describes as:

"...the process of aligning and developing the capacities of a team to create the results its members truly desire. It builds on the discipline of developing a shared vision...and on personal mastery."

(Senge 1990, p. 236)

This involves staff working together with the same shared vision and with good personal mastery. A requirement is the notion of **dialogue** which Senge based on David Bohm's (1985) concepts and which he believes is a central feature for the success of a learning organisation.

With these five disciplines Senge challenges the traditional view of management which is based on the assumption of: "...people's powerlessness, their lack of personal vision and inability to master the forces of change, deficits which can be remedied only by a few great leaders" (1990, p. 340). He sets out to replace it by a view of leadership which a learning organisation requires that centres on "subtler and more important tasks" and he describes new leaders as:

"...designers, stewards and teachers... [who] are responsible for building organisations where people continually expand their capabilities to understand complexity, clarify vision, and improve shared mental models – that is, they are responsible for learning".

(Senge 1990, p. 340)

Senge himself questioned the practicality of his theories and what can be considered to be his utopian ideas of organisations which will bring human values to the work place and enhance the capacity of people to reach their full potentials. Consequently he co-authored a sequel – *The Fifth Discipline Fieldbook: Strategies and Tools for Building a Learning Organisation* (1994). The book is designed to help managers move from the philosophical understanding about learning organisations to the practical part of actually getting started to form them.

More importantly Senge and friends then published *The Dance of Change: The Challenges to Sustaining Momentum in Learning Organisations*, in which it is acknowledged that:

"...initiating and sustaining change is more daunting than the optimistic presentation that was first offered in The Fifth Discipline had suggested" and that "...the task of making change happen requires business people to change the way they think about organisations – we need to think less like managers and more like biologists".

(Senge et al 1999, p. 13)

Senge's intention was not to make a unique contribution to the theory of organisational learning; instead he has drawn from the principles of systems dynamics and learning theory to derive implications for the design and implementation of a new approach (as cited in Easterby-Smith & Aranjó 1999, p. 19).

Despite the popularity of the vision Senge gives, and the support this has received through the member companies of the Centre for Organisational Learning (later called the Society for Organisational Learning), there are few well known companies which have followed his approach and have put his principles into practice rigorously.

Robert Heller, a business author and management commentator writes in his book *Bill Gates: Genius of the Software Revolution and Master of the Information Age* (2000, p.30) that Microsoft has been credited with being a genuine example of the learning organisation. However Bill Gates did not use this phrase because, he said, of its "vagueness". He emphasised instead the importance to his organisation of "knowledge management". Acknowledgement of the importance of a learning organisation philosophy to MS was however made in 1999 by Gates in his own book *Business @ the Speed of Thought* (1999).

Jack Welsh (1998) claimed that General Electric was a "learning company". This reference was made about the learning culture which GE had succeeded in achieving through the Six Sigma quality learner-based initiative. Probably, as in the case of Gates, what Welsh implied was that GE was in a state of continual learning, creating knowledge as a core competence. Neither company acknowledged formally nor adhered strictly to the five disciplines of Senge!

Two further writers on organisational learning who contributed to the debate about organisational learning in the late 1990s were RL Flood and E Wenger.

Flood agreed with Senge's approach which was based on the assumption that:

"Extending one's knowledge of systems archetypes expands one's ability to get to grips with management issues...".

(Flood 1999, p.14)

While he praises Senge for starting a "possible revolution of thinking in the making" (p. 27), and identifies strongly with the approach which Senge advocates, he is critical of the fact that the only systems approach used in *The Fifth Discipline* is "system dynamics".

Checkland's "soft systems approach", Ackoff's "interactive planning" and Bertalanffy's "open systems theory" are mentioned only in passing. (Flood 1999, p. 28)

In advocating "*other important insights systemic thinkers have to offer*" he calls for further engagement with the subject to gain "*crucial enriching insights*". (p. 28)

The inclusion of Soft Systems Methodology, which Checkland developed, would, Flood felt, have assisted managers and groups in "*confronting complex issues that may be embarrassing or threatening*", as Senge (1994, p. 25) had acknowledged could be the case.

Wenger (1998) writing about learning communities echoes much of what Senge says in *The Fifth Discipline*. His focus (and passion) are on social learning. Learning, he claims, is not a separate activity, and it, like communities, forms an integral part of our daily lives. Learning in communities is the basis of his concept of a "*community of practice*" (Wenger 1998, p. 5). The "*active participation in social communities*" (p. 10) needs to be guided, and he calls for:

"...inventive ways of engaging [those who learn] in meaningful practices, of providing access to resources that enhance their participation, of opening their horizons so they can put themselves on learning trajectories..."

(p. 10)

Despite the exciting challenges which are presented by ideas about organisational learning, generally in capitalist systems fundamental interest is on the bottom line and not with the learning and development of employees, and this conflict remains unresolved and stands in the way of general implementation of what has been proposed.

Other concerns about the real value of what Senge has written are about the relative sophistication of the principles and the nature of the dispositions which are demanded from those who wish to embrace the theory, and the question of whether staff are prepared for the daunting exercise of exploring (and getting to know) themselves.

The question which has still to be answered is whether the adoption of Senge's principles (where this has taken place) does lead to widespread (general) sustainable success for individuals and their organisations.

3.4 Summary of main conclusions

It is sobering to realise that only about a third of America's top five hundred companies in 1970 still existed twenty five years later! (Micklethwait & Wooldridge 1996, p. 9). This huge attrition rate has accelerated further until today and it is not surprising that even the best companies fearing for their own existence, are forever re-organising themselves, and that as managers and companies try to deal with this unstable age they are drawn to the largely untested and often discredited mantras of many management theorists.

Although writing on management theories is one hundred years old, changes to the domains of business understanding were slow in coming despite the glitches of world wars and economic uncertainty over that period which gave opportunities for re-thinking.

Assumptions which had been made were for many decades largely reliable: futures were predictable and causes produced anticipated effects. Managing organisations was a mechanical, rational process, and the training for business followed frameworks of maps, rules, and reference manuals.

This rationality of approach showed the first signs of being questioned in the 1940s, when the human element of organisations first came under discussion. (Henry Ford's famous quote: "*You can have any colour of car as long as it is black,*" overshadowed another more profound quote he is credited with making: "*Why is it that when I need hands I get people too?*")

The accommodation of the two primary phases of scientific and human relations theories into the human resources movement in the 1960s and 1970s formed the foundation for the management styles which were then practiced (at least in the western world) in the mid-1980s, and are still practised up until today.

During this time supporters of more humanist approaches looked to the Japanese styles of participative total-quality management and just-in-time practices, in which devolution of decision-making was practised. This period was also punctuated with desperate grasping at the poorly conceived management fads.

However the grim realities of business, and the coming of New Economy in the late 1980s have overshadowed whatever management had practised more or less successfully until then, and in a reaction to the new complex nature of business the dominant

management theory of the 1990s became re-engineering. Micklethwait and Wooldridge (1996, p. 20) called it “*trying to adapt Taylorism to the age of the computer*”.

The focus on re-engineering and the attempts to extend its popularity are reflected in the many changes of emphasis which theorists like Hammer and Champy proposed. The theme “re-engineering work”, was followed by “re-engineering management”, which was followed by “re-engineering the corporation”, and then “re-engineering the revolution”, and “beyond re-engineering” and I imagine will be followed in the future by a book written about “re-engineering re-engineering”!

This in itself is testimony to the self-evident fact that re-engineering is not the answer to the challenges which the complexity of the last fifteen years has posed. Thomas Davenport and Lawrence Prusak (2003, p. 10) have been less critical of re-engineering and acknowledge the importance of companies re-examining how they function. However they criticise the “biggest business idea ever” for the way it has been interpreted and implemented.

The same adoption and later rejection applies to the many new approaches which have been advocated (some admirable) which are based on the premise that it is possible and desirable to return organisations (with an emphasis on structures and processes) to a stable state of equilibrium. At their best they have led to managers in some cases doing the wrong things well. The belief in and commitment to the many flavours of new management theories is at the same time remarkable and indicative of the desperate need to find answers outside of traditional management competencies.

Changes however were starting to take place and the re-thinking of the fundamentals of traditional scientific understanding provided a link to understandings of organisational development. As a consequence complexity and systems thinking are now being applied in management theories.

Arising from these studies the study of social systems and system dynamics has been called (rather optimistically) the “New Science” (Wheatley) or the “Universal Science of Organisation” (Bogdanov).

Up until recently management theories have generally lacked rules by which they are debated and against which they can be measured, and writers on management, as described by Micklethwait and Wooldridge (1996, pp. 13-14):

“...often throw out intellectual grappling hooks to other disciplines, such as economics, philosophy and history; [however] other academics seldom return the favour,” and “...the hard fact remains that most academics are rude about management theory simply because they do not think that it is very profound.”

However, linking new theories of organisational development to general systems theory which is now taking place gives a new legitimacy to the ideas on management which are emerging.

Systems theories are based on the acceptance of the importance of the interrelatedness of components in systems, and the relationships between systems. This strongly contradicts the traditional reductionist methodologies which have been used in the past to understand change processes. (In complex systems the link between cause and effect is not obvious and happens too long term to be observed and a cybernetic understanding of systems development, on which the scientific/mechanistic traditional theories are based, proves to be completely inappropriate.)

The focus of systems thinking in organisations has now moved to the deep processes of what really defines and determines organisations. These processes are contained in the minds and behaviour of the members of organisations and other stakeholders, and in systems theories the focus of change is on the individuals in the system and on self-organisation.

What flows from the complex, non-linear understanding of the development which is taking place in companies is both daunting and challenging!

Those who accept that they work in a business environment which is part of a non-linear system (in systems dynamics or complex responsive processes) enter a new age in which companies and careers are being re-defined. The re-definition is in the process of taking place, and care must be taken that this phase or era will not be judged with hindsight as another desperate gasp for help.

What differentiates systems thinking in organisational development from the phases of management thinking of the past (and the many theories which promised so much and delivered so little) is the link it has to the new understanding of scientific thinking. At the core of this understanding is the significance of processes which determine the

relationships between the parts or agents in the systems. For systems to survive and develop in turbulent times (i.e. organisations in the New Economy) those in the systems must promote this aspect by having greater connectivity between agents, diversity and communication, and must feel comfortable with states of non-equilibrium and uncertainty.

This is vastly different from the traditional style of management which forever has felt comfortable only when “everything is under control”, and this is a challenge to the fundamental mindsets of managers.

The constitution of organisations within the paradigm of systems dynamics/complex adaptive systems is very different from traditional hierarchical/bureaucratic organisations. The emphasis of the former is on processes rather than structures or patterns of relationships. These processes are cognitive issues which define the deep nature of the organisation and a shared understanding among stakeholders of their roles. These organisations are sensitive to the environment and promote shared world views and mental models among their stakeholders. The organisations accept change and promote networks which are quick to identify and respond to change in which opportunities for growth are presented.

The new role of managers in this type of organisation is predicated on a completely different set of competencies from the traditional. These competencies have to do with the way people are rather than what they can do and include openness to experience, and to learning, having an enquiring mind, personal reflection, ability to reason and influence, being agents of change, being able to understand the new nature of organisations, and having wisdom, talent and artistry. Their challenge is to become less like managers and more like biologists, designers, stewards, teachers and gardeners.

In many cases this will mean managers (and staff) will have to change their world views and mental models, to believe deeply in them and to live them. Part of the challenge will be for managers, staff and organisations to become aware of both their espoused and their practised mental models, and to learn about and align the two.

This process of re-perceiving the nature of an organisation, and developing the new role of managers and staff, is a challenge which can be met through organisational learning. Meeting the challenge requires the commitment of an organisation to the process of learning and change, and the capacity of the organisation and staff to learn. The

organisation's management must provide platforms for learning, by giving the structures and tools and by providing guidance. The learning must be designed to take place in diverse groups experientially and must encourage challenges to accepted norms and ideas.

One of the problems organisations will face is the change which needs to take place for learning in the organisation to become generative, and open ended rather than adaptive or for survival and incidental. Another is that becoming a learning organisation challenges the capacity of staff and managers to really know themselves (a daunting task) and to change.

The fact is however, that real learning is a part of human nature and is deeply satisfying for those who learn. In learning organisations the organisations themselves evolve and develop fitness for the challenges of uncertain futures, and it is in this mode of learning in a changing environment that "possibilities open up".

Peter Senge's learning organisation approach can be criticised for being rather prescriptive and orthodox. It says more about "what" rather than "how" but nevertheless has made a valuable contribution to the literature on organisational learning.

Whether what has been discussed in this section can be translated into action and practised by companies to give sustained competitive performance needs to be tested. In the next chapter a framework is developed, which is based on the literature which has been discussed, and this framework is used to ascertain the changes which such an approach has brought about in the lives of fifteen remarkable people in Siemens.

CHAPTER 4 – DEVELOPMENT OF A RESEARCH FRAMEWORK, RESEARCH DESIGN AND METHODOLOGY

4.1 An overview of the framework

The paradigm of research which was used is **analytical interviewing**. The form and content of the research were determined by a framework developed to guide the interviews through a number of areas which were important to the study. Questions about **the environment of business** were developed to initiate discussions about the nature of Siemens' business in South Africa, the structure of the organisation and the shortcomings of the existing company management mindset in these conditions. Secondly, questions were built into the framework to explore the design of the programme of **management development** which Siemens provided and the novel form of the learning which took place which reflected the five disciplines of Senge's Learning Organisation. Finally the framework was developed to focus on **the impact** which this training and subsequent developments had on fifteen high-potential young managers in the company with respect to their motivation, development and performance.

Propositions in each of these three areas are set out for which questions were developed to guide the interviews.

4.2 The environment of Siemens business

Siemens is active in all of the SADC countries and employs about three thousand staff. The business volume is about eight billion rand. The nature the business is that of a high technology company involved in product sales, services and project business in a wide range of fields – medical engineering, electronic components, power generation, electric motors and switchgear, public and private telecommunications networks, mobile devices and networks, computer sales and provision of information systems services. Customers are drawn from large industrial companies, state organisations and parastatals and from financial/commercial sectors of the economy. No local manufacturing is done in this region, and all products and components are imported from the holding company in Germany, Siemens AG. Products are sold directly into the market and value-add is provided by systems designing and engineering.

Basic technical skills are readily available in South Africa, but a big investment is made in advanced technical training which is done in Europe and North America.

Siemens has been in South Africa for over one hundred years. After 1994 the nature of the company's business changed quite dramatically particularly as a result of the new competition from multinationals which then entered the market, and the added responsibility which Siemens South Africa now has for business development in the SADC countries. The latest German technology is sold into the South African market by the local Siemens company (GSM networks, computer X-Ray-type medical equipment, mobile devices) and the most sophisticated business systems (Intranet, e-commerce, SAP R/3) are used.

The uncertainty which is associated with being in the New Economy is no different for Siemens in Southern Africa from what it is in any other country where Siemens AG does business. The fact that the economies of Southern Africa are both First and Third World, adds another dimension of uncertainty and further complexity to the business environment.

Finally, the management style of Siemens as has already been mentioned is still today strongly hierarchical and bureaucratic which originates from the time the company was founded and its strong Teutonic culture.

The degree of understanding of the group of young managers of the **environment of business** in Southern Africa was explored in **Part 1** of the interview process. Particular emphasis was given to discussing:

- The high technology nature of the business
- The opening up of world markets
- The advent of computer networks
- New attitudes and expectations of workers
- The structure of the organisation
- The influence from Siemens AG
- The shortcomings of the existing dominant management mindset in the organisation.

4.3 Management development at Siemens

The re-examination of traditional practices of management development over the last five years (and particularly during the time when the writer was studying towards the MSc) has changed the focus of management training in Siemens South Africa. The acceptance of the complex nature of the environment in which business is transacted led to moves away from the way training had been done previously which had emphasised traditional approaches and the development of competencies. For many years the approach which reflected the top-down hierarchical style in the company (epitomised best by the prescriptive way scenario planning and strategic management was done) was based on management by objectives. This MBO approach was used to control the achievement of budgets and other targets which were largely imposed on managers. The normal planning period was five years. As has been mentioned previously, non-achievement of targets and uncertainty about the reliability of the plans led to a number of interventions by consulting companies.

During this time of uncertainty the CEO requested a re-thinking of the training of a new generation of managers which was emerging – the so-called “high potentials”.

One of the objectives of the new approach which was subsequently achieved very well, was to train them to become the extended arm of the corporate function Group Strategy which was co-responsible with the directors of the company’s Business Units for scenario and strategic planning. Communities of motivated, well informed younger managers were to be developed who would contribute to the development of the new scenarios and strategies. The other objective was to empower those who were trained to take charge of their own development.

The training placed emphasis on the traditional knowledge which was needed (typically the MBA subjects – the content was from Henley Management College). An outline of the programme is shown in Chapter 8. However the company’s programmes differed from the traditional in the way in which they were designed to run, and what the intended outcomes were.

Part 2 of the interview process was used to explore the novel design of the **management development**.

The topics which give focus to the form the training took and which were discussed are shown below:

- The role of groups and relationships in the learning process
- The emergent, self-organising nature of the learning
- How learning resulted from change
- The questioning of the company approaches through double-loop learning and reflection
- How this form of learning was noticeably different from the traditional learning approaches
- The role and nature of dialogue and discussion in the learning process
- How shared vision was a part of learning
- New ways of seeing things
- The roles of experiential learning and diversity in the training
- What aspects of wholeness were present in the learning.

4.4 Measuring the impact

The objective of organisational learning is to impact on paradigms which can lead to movement away from the traditional styles of organisations and management to modern more suitable and sustainable alternatives. Achieving this meant designing management development which would challenge and then bring about changes to the mindsets of the new generation of Siemens managers. The **impact** and degree to which this has been achieved were examined in **Part 3** of the framework and through discussions around the following:

- What contributed to awareness and changing of mindsets
- How personal visions changed
- What encouragement was given to take control of their lives and how well this was achieved
- How they became aware of their own theories-in-use and espoused theories
- How alignment between espoused theories and theories-in-use has taken place
- How reasoning and questioning took place
- What form of re-perceiving was encouraged in the programmes

- How differing from company practices and speaking out were encouraged and whether this now happens
- How self-honesty was promoted and is now practised
- What insecurity, tension and lack of equilibrium were produced in the learning process
- Whether this challenged participants in the programme to move beyond their comfort zones
- How disagreement, doubt, contradictions, and opportunities in the learning processes have changed their lives
- What commitment they have made to continuous learning.

4.5 The framework

The framework in three parts which constituted the discussions which took place in the interviews is summarised as follows:

Part 1 – The environment of Siemens business

Part 2 – Management development at Siemens Ltd.

Part 3 – Measuring the impact

4.6 Defining the study

The writer of this dissertation had himself gone through changes in his own views on management over the last five years. These views which have substantial support in the literature which has been reviewed in this study manifest themselves in the new way management development is understood and carried out in Siemens. Many of those who have been trained in recent years have expressed similar changes which have taken place in their own thinking, ways of managing and careers, and the study explored these remarkable stories.

From the outset several assumptions were made about management development and the company:

- **There was an openness in the organisation for research of this nature to take place**

- **There was an identifiable style of management dominant in the company**
- **Managers can change the way they manage**
- **The benefits of a learning organisation can be demonstrated.**

With the background of these assumptions the research focused on three propositions which are aligned to the three parts of the framework which was defined above.

Proposition 1 The business environment in which the company operates is complex and the traditional style of management is not suitable to sustain competitive performance

To test this proposition the following were discussed:

- The complexity of the business environment and the impact of the New Economy on the company
- The inappropriateness of the hierarchical/bureaucratic structures and the traditional style of management in the company

Proposition 2 The novel design of the management development focuses on making the company a learning organisation

To test this proposition the following were discussed:

- The systemic nature of the training (wholeness, experiential, diverse, involving relationships)
- The promotion of questioning (assumptions, ways of doing things) and re-perceiving
- The role of dialogue
- Providing opportunities for the emergence of shared visions

Proposition 3 Changes which have taken place have challenged existing mindsets and new nuances of understandings about management have begun to emerge in the company

To test this proposition the following were discussed:

- Changes in awareness/mindsets/vision which have taken place
- The emergence of new forms of dialogue (questioning and reasoning)
- People taking charge of their own development (promotion of self-honesty, aligning espoused theories and theories-in-use)
- Being on the edge (moving beyond comfort zones, insecurity, tension, lack of equilibrium, disagreement, doubt, contradictions and opportunities which were produced)
- Commitment to continuous learning

4.7 Research methodology

The study focuses mainly on what changes have taken place in people's lives since they underwent the management development and the impact which the learning organisation approach towards management development is having in the company. By its nature the outcome of the discussions over the propositions which have been mentioned were deeply personal and far reaching.

As has been mentioned the methodology which was used in the research which was deemed to be the most suitable in this context is qualitative interviewing.

Meg Sewell of the University of Arizona writing for the publication *Cyfernet Evaluation* states that this paradigm of research is best suited for

“...evaluating programmes that are aimed at individual outcomes, capturing and describing programme processes, exploring individual differences between participants' experiences and outcomes, and evaluating programmes that are seen as dynamic or evolving”.

From the three basic types of qualitative interviewing methods which have been identified by Patton (1990), the one which was used was the Standardised Open-Ended Interview. Although this approach limits flexibility and has characteristics of quantitative interviewing, it retains its qualitative nature because of the open-ended responses which are elicited.

The approach advocated by Steiner Kvale's writing on qualitative interviewing is used in which "*interviews are conversations where outcome is a co-production of the interviewer and the interviewee.*" Kvale (1996)

The method of the interviewing process was based on Kvale's seven stages of qualitative research –

1. Thematising

The purpose of the study was clearly defined and has been described previously.

2. Designing

The design of the study was set up before the commencement of the research.

3. Interviewing

The writer was aware of and sensitive to his role. Cognizance was taken of factors like personalities, experience and knowledge, and the importance of non-verbal messages, effects of where and how the interviews took place, and the impact which the relationships between interviewer and interviewee can have.

4. Transcribing

Careful preparation was done and due attention was given to ensure correct recording of the essence of the interviews.

5. Analysing

Because of the anticipated volume of material that would be collected and analysed structures needed to be put in place. Thus a framework for the interviews was developed. The format for recording responses to the questions which were discussed helped to make the coding and interpretation easier.

6. Verifying

To ensure reliability and validity the transcripts and analyses of the interviews were discussed with the interviewees for verification.

7. Reporting

The report on the findings was balanced in terms of detail and summaries. It was done in an acceptable form, met ethical standards of confidentiality and was made readable and useful for intended audiences.

Finally the writer was aware of the ethical issues which arise from Qualitative Interviewing. Therefore consideration was given to and care taken with:

Confidentiality (those interviewed were informed from the start about the intention of the study)

Informed consent (the interviews took place only after the study had been explained, and agreement was given by the interviewees to be part of the study)

Risk assessment (potential risks – psychological or to careers – were considered, but it was unlikely that they would apply to this group of high potential staff)

Promises and reciprocity (this issue was discussed before the interviews, and nothing in return was expected from those who were interviewed)

Interviewer mental health (the nature of the interviews was positive as those interviewed had been chosen for their extraordinary development in the company. After the interviews debriefing took place.)

4.8 Measurements used

The issues which are pertinent to the study (the environment of business and management style in the company; the nature of the learning; and the impact which becoming a learning organisation is having on managers in the company) were explored through rich conversations which took place using the framework which had been set up. This consisted of fourteen questions which were asked to address the issues which are mentioned above. The three parts of the framework and the questions are shown in Chapter 8 in detail.

4.9 Sampling techniques employed

Over one hundred and fifty managers have undergone the management development (over the last five years). About a third of these (in the first two years of training) were older, more senior managers. Refinements were introduced in the third year when more emphasis was given to learning as it relates to change with particular emphasis on

changing of mindsets. All those who took part in the development programmes were challenged in their ways of managing and thinking.

Any of those who were trained could have been selected for this study but the fifteen managers who were interviewed were selected based on the following criteria:

- They were generally younger and constitute a new generation of managers
- They were mostly (over 70%) trained on the last three programmes (2001, 2002, 2003)
- They have shown a willingness to talk about their experiences of learning and change, and
- They demonstrate the possibilities of extraordinary development which can be achieved for similar young, high-potential managers.

4.10 Data collection methods

All fifteen of those who were to be interviewed were contacted by the writer and agreed to be part of the study. The positioning of the study (the dissertation for the MSc) was explained to all of them.

Interviews were arranged and took place over a period of a month in the offices of the interviewees where this was possible.

In the interviews the interviewer carefully explained the list of propositions and questions which constitute the framework of the interviews. One and a half hours were set aside for each interview. Notes were taken during the interviews which recorded both the discussions which related directly to the topics, and to other significant issues which emerged. The last mentioned were recorded separately on the documents which were used to record each interview. These documents in each case were then scrutinised and rewritten as summaries on the same days on which the interviews took place. Examples of these summaries are shown in Chapter 8.

4.11 Data analysis

The shortcoming of qualitative research as opposed to experimental research, and the non-definitive nature of interviewing used in the research as opposed to scientific research, are acknowledged from the outset.

This study however was set in the domain of organisational development where softer issues (world views, mindsets, *Weltanschauung*, reflection, opinions, emotions) were the determining factors.

A balance in qualitative reporting was maintained between objective analysis and some subjectivity which of necessity was shown in identifying and analysing the trends which emerged.

4.12 Shortcomings and sources of error

As applies to any interviewing situation the quality of the data collected was affected by a number of issues which were inherent to the process.

Time constraints, the familiarity between interviewer and interviewees (in all cases those interviewed had taken part in development programmes which had been designed and were facilitated by the writer of this dissertation), respective understandings and preconceived ideas, the level of skill required from the interviewer, and even in some cases the fact that English was the language used in the interviews, all impacted on the collection of the data and the interpretation which followed.

Furthermore the interviewer acknowledges that the research process was complicated by the bias arising from the fact that he chose the area of study and the method and then collected the data, judged the quality and interpreted what he found, and had himself been significantly influenced by the learning which was taking place. This acknowledgement is important. As a result the researcher played a significant role in the research, but remained aware of his own boundaries and the boundaries of the research in which the interviews and their analysis were “*attempts to understand the world from the subjects’ point of view, to unfold the meaning of the people’s experiences, to uncover their lived world prior to scientific explanations*”. (Kvale 1996)

CHAPTER 5 – PRESENTATION AND DISCUSSION OF RESULTS

5.1 Data collection and analysis

The data which was collected from the questions which were discussed in the interviews is recorded in this section in summary form of actual statements which were made in the interviews. These statements were selected as the best expressions of the general sentiments which were exposed in the discussions. The data was then analysed in three parts which correspond to the three propositions which were made in the framework which was developed in Chapter 4.

5.1.1 Proposition 1 The business environment in which the company operates is complex and the traditional style of management is not suitable to sustain competitive advantage.

Questions related to Proposition 1

Question 1 What impact does the German holding company have on the style of management of the local company?

“The style can be described as very conservative, bureaucratic, prescriptive.”

“Siemens AG [SAG is the German-based holding company] dictates: This way or no way.”

“SAG tells us what our customers want.”

“They make our lives difficult.”

“They add no value and are out of touch.”

“We don’t engage in dialogue with them; it is not possible. They frustrate us!”

“We stand between SAG and our customers.”

“Their silo thinking is out of touch with the markets.”

“Distrust comes from prescription.”

“We fight amongst ourselves.”

“All German-based companies are the same. It makes us all arrogant.”

“This impacts on our style.”

“The new generation is not very different.”

“The autocratic approach gets results but they are not sustainable.”

“Being the best (quality) makes you arrogant!”

Question 2

Describe the complex nature of your business environment.

“Business is no longer day-to-day. It is now moment-to-moment.”

“We work in a dynamic business environment where things happen much more quickly today.”

“We work in the Old and in the New economies, and in Africa!”

“Business is much more unpredictable – unstable markets, rates of exchange.”

“There is more competition.”

“Business is different: more mergers and acquisitions.”

“Technology changes more quickly and is more complex. Converging technologies.”

“Information is much more accessible – even to our customers.”

“Multi-technologies make business more complex.”

“The weak rand brought more players into our markets.”

“There are more difficult, less loyal customers, and greater demands for professionalism. They ask ‘Why Siemens?’”

“Staffing is different.”

“Younger qualified staff are more confident, more critical.”

“Siemens is no longer regarded as the be-all and end-all of employment. There is a war on for talent.”

“Staff generally have a different work ethic.”

Question 3 What is driving the changes to the management style which are taking place?

“Signs that SAG is becoming aware of the necessity to change – the announcement of a new generation of executive managers!”

“Technology drives change.”

“9.11 and different worldviews!”

“Change must happen – we don’t have a choice. Realisation of the need to change drives change.”

“The nature of our business – competition, focus on customers and on results. Flatter organisations.”

“Different types of business (customers needing more convincing, better negotiating).”

“Competition is forcing us to change (better educated, less loyal customers).”

“New staff demands.”

“People issues.”

“Younger managers, better educated and knowing what they know.”

“More focus on results, bottom line drives change.”

“The challenge!”

Question 4 What changes have taken place to the style of management in the company over the last few years?

“A greater appreciation of professional management style is emerging.”

“The forming of networks of individuals who have been through similar training programmes, and who ‘speak the same language’, is taking place.”

“There are ‘pockets of enlightenment’.”

“More discussion is taking place.”

“Opinions are being sought at all levels.”

“New structures are being formed to better utilise and share knowledge and experience.”

“Focus is on individual development.”

“Emergence of a proud performance culture.”

“Devolution of authority is taking place.”

Discussion of results related to Proposition 1

The influence of a very bureaucratic style of management in the German holding company (which is connected to stereotypical Teutonic characteristics) is very strong in the local company.

There is significant resistance to this from local staff and there is recognition that this style is inappropriate, particularly in relation to the challenges which exist in the local market.

All aspects of New Economy business apply in this country as they would apply anywhere else in the world. The complexity is increased and doing business is further complicated by the fact that the company operates in an Old and a New Economy, in First and Third World socio/economic conditions, and in an economy which was for many years controlled artificially, and is now in a phase of extraordinary adjustments.

The increase in competition in local and SADC markets, new customer awareness and demands, and a stronger focus on results which comes from Siemens in Germany (and with that signs that SAG is accepting greater autonomy from the company in South Africa) are the challenges which are being made for the local company to change.

Overwhelmingly those who were interviewed are committed to change which is driven by what has already mentioned and by the nature of the high technology business environment, but also by the realisation of the importance of and the determination to change. (This commitment is increasingly found in the company.)

Changes which are taking place which endorse the view that the traditional, high-technology, autocratic style is not suitable to meet present day challenges, are nicely depicted by the greater appreciation by local Executive Management of the role which is now being played by the large groups of younger, high-potential

managers in Siemens South Africa. Many elements of a modern, new-management style are emerging (networking, knowledge management, committees of learning being formed, discussion and dialogue being encouraged, focus being given to on-going development).

5.1.2 Proposition 2 The novel design of the management development focuses on making the company a learning organisation.

Questions related to proposition 2

Question 5 Describe the learning process you have been through.

“The programme stimulated learning like no other process I know. (We should have put 750 people on the programme and not only 150!)”

“One of the greatest learning aspects was meeting and getting to know many different people.”

“Interacting with others was more important than the theory on the programme.”

“The programme challenged how we think.”

“Learning happened when we applied theory to our areas of responsibilities.”

“We learnt from the integrated view.”

“My narrow view was challenged by the holistic presentation of business.”

“Theory ‘evolved’ through practical experiences.

We learnt by questioning.”

“I learnt not to underestimate my own ability.”

“I learnt about myself.”

“We learnt by opening our minds.”

Question 6 Comment on your awareness of the wholeness, experiential learning, learning in groups and from diversity, and of relationship building which are part of the design of the programme.

“We suddenly became fully aware of ourselves and of our roles in the larger world of Siemens business.”

“Theory came alive when I applied it in my organisation.”

“The important things on the programme were networking, discussion and arguments in groups of ambitious, capable people.”

“Learning in the group gives you more than you can learn on your own.”

“Interactions provided learning.”

“We learnt from each other and working in groups worked very well.”

“We shared our ideas.”

“We mixed with people from different disciplines which represented the whole company.”

“I saw how people did things differently and only when I recognised the art of doing things differently did I change.”

“When you learn with different people ideas multiply.”

“There was initial tension from the dynamics and diversity within the group. The tension actually helped us to get to know one another. We had to. SA Breweries was the glue.”

Question 7

What role did dialogue and the promotion of questioning play in your thinking?

“There were hectic debates.”

“Disagreement is good, but it is time consuming.”

“We discussed and argued more as we grew in confidence and got to know one another.”

“Arguments were the eye openers.”

“The contrasting ideas and ways of doing things provided the opportunities to learn.”

“I enjoyed and learnt from questioning the traditional ‘Siemens way’.”

“We discussed and questioned everything – both on the programme and back on the job.”

“My manager encouraged me to think and question.”

“The interactions were the lessons.”

“Disagreements meant learning.”

Question 8

If one can talk about a new “shared vision” of the group, how would you describe this?

“We all learnt to think and shared and new ideas.

We are all more professional.”

“We have formed an ‘Old Boys Club’ (with a few female members).”

“We were in it together.”

“We have a common different view of the future.”

“People now have the same business language.”

“At the end a shared vision for our company’s future made it easier for us to work together.”

“Participants aligned goals.”

“Disagreement at the beginning was important because when we finally agreed everyone was on board.”

“We had to gel to be successful.”

“Getting to know people brought acceptance, tolerance and agreements.”

“We agreed that we wanted to contribute the changes which have started in the company.”

Discussion of results related to Proposition 2

Theory which was presented on the programme included the traditional business school subjects (strategy, marketing, people management, operations management, finance, information management). What made more of an impact than this theory on those who participated was however the design of the programme.

All theory which was presented was tested against the current practices in each participant’s area of responsibility. This resulted in challenging the narrow views

about business which were held by many of those on the programme and challenging their capacities to question, to learn and to know themselves. The learning took place in groups and a similar questioning within group contexts took place.

Many commented on seeing for the first time and understanding the wholeness of business processes.

The experiential nature of the learning (this was built into every stage of the programme – in assignments, on individual projects and on group projects) had one of the biggest impacts. This not only made sense of the theory, but it also led to participants on the programme testing their own understandings about business, and questioning the practice of business in the company.

The important role of learning in groups was mentioned repeatedly.

The element of diversity which emerged was diversity in terms of what participants had studied or of their working experiences. Very little mention was made of age, gender, or racial differences although all of these existed on the programmes.

Many spoke of the role of questioning and dialogue within the groups on the programme, and how this has been successfully carried over into their work.

Disagreements (arguing and questions) at the beginning were important, but the groups soon realised the importance of working together.

The “shared vision” of the group at the end was probably the idea that they were the new generation of managers, the new ambassadors of doing things differently and better.

- 5.1.3 Proposition 3** **Changes which have taken place have challenged existing mindsets and new nuances of understandings about management have begun to emerge in the company.**

Questions related to Proposition 3

Question 9 **Talk about your change of awareness/mindset/vision since doing the training.**

- “The training opened me up.”
- “The new ideas provided a starting point from which I can grow.”
- “The programme changed my life. I am confident to question.”
- “The programme sparked my interest to learn.”
- “My thought processes have changed.”
- “My decision making is different.”
- “The new ways of thinking and doing are now part of what I am.”
- “I gained the confidence to see through new initiatives.”
- “What we learnt is how we now do business.”
- “The questioning has led to new ways of doing things.”
- “We gained confidence.”
- “We now understand our own strengths and weaknesses.”
- “We gained insights.”
- “It is frustrating because now I question everything.”
- “The programme changed our thinking and challenges the way Siemens does business.”
- “The major change is that I now see things in context.”
- “Knowing has built confidence.”
- “The development widened my horizons.”
- “I can now understand why companies are successful.”
- “For me the ultimate benefit was to overcome the uncertainty I felt.”
- “I now have a new mindset but what do I do with it?”
- “I changed my view of life and business! I now have a different paradigm about the company.”
- “I have learnt how to learn.”
- “I am more confident – more sure of what I want to do.”

“I used to focus on processes and controls. I now focus on the whole business.”

“I am more confident.”

“I previously had to understand everything. I now manage people who do.”

“I tend naturally to tell – I have learnt to ask.”

“I now strategically go about convincing people.”

“The programme brought about a paradigm shift.”

“I now have the self-awareness of having been type-cast as a salesman. This awareness was the beginning of changing that image.”

Question 10

How did these changes come about?

“I thought honestly about and now know my own weaknesses.”

“I now understand and am close to people from different disciplines.”

“The training made me more responsive.”

“I no longer wait to be told what to do.”

“The changes evolved from the training – I am confident to now tell my manager what needs to be focused upon (and he accepts it).”

“What kept me going during the training was what I aimed to be at the end.”

“The changes come from mixing with people from other disciplines and having a common goal.”

“I have changed because I have learnt to question.”

“Theory comes alive if you take it into an organisation and try to apply it.”

“I have changed because of external influences.”

“I took risks and it paid off.”

“Taking on new challenges changed me.”

“I used to bang my head – now I use it.”

“The real learning happened when I got this new job.”

“I have changed by challenging everything.”

“Working and learning with others changed the way I am.”

“I learnt from interactions with others on the programme.”

“I realised ‘I can do this’.”

“Networking taught me.”

“Managers who learnt from the old style are now learning from the new style.”

“I was dragged out of my comfort zone.”

“The course was the catalyst of my changing.”

Question 11

How are you now in charge of your own career development.

“We have become empowered.”

“I had reached a ceiling and was isolated in my previous position – the development has widened my horizons.”

“Up to a point I had relied on someone else deciding that something should happen to my career. I have learnt to take charge.”

“I need to learn again from a new challenge. I am now almost in a comfort zone.”

“I now have a career plan.”

“I have positioned myself for the future.”

“Opportunities have become obvious.”

Question 12

How did “being on the edge” (moving beyond your comfort zone) contribute to the changes which have taken place?

“The insecurity of learning new things and new ways of doing things was needed, and you adapt to it.”

“My quest was to be a new person.”

“I have always liked change, but now I know I can handle it.”

“All of us on the programme agreed to take more risks in the future.”

“I have put myself on the edge deliberately – I did not want to miss the wave.”

“Learning was stressful and challenged ability.”

Question 13

Give examples of changes which have taken place in your career over the last few years.

“I was engineering manager: I am now a business manager.”

“The attitude of my manager is different. He has taken a bold step to encourage my input.”

“I have made two moves upwards in the four years since doing the programme.”

“I am now FD of Fujitsu/Siemens. A new paradigm was needed and I was equipped to meet the challenge.”

“I am now involved in all strategic issues.”

“In my new position the buck now stops with me.”

“From grade 7 to 5 in 1½ years!”

“I now run my division based on what I learnt.”

“I am now the messenger to the company of professional ways of doing business.”

“It did work – look at me after 3 years.”

“I entrench what I learnt by applying it in my job.”

“The decision to move to my new position came from the programme.”

Question 14

Describe your commitment to “continuous learning”.

“I am now a life learner and have developed a love for business.”

“My management style is to encourage continuous learning.”

“I empower my staff by exposing them to the decision making of management.”

“I see learning as a way of growing and getting ahead.”

[Many commented on the importance of furthering their studies. Eight of the fifteen who were interviewed are already in the second or third years of studying towards the Henley Management College MBA.]

Discussion of results related to Proposition 3

A number of trends emerged from these discussions about this proposition (mindset changes and awareness of new understandings). There was strong focus on how the questioning which had been encouraged on the programmes had led to people getting to know themselves and feeling empowered to discover new ways of thinking and doing things. “New paradigms”, “life changing”, “new insights” were often mentioned as the results of the reflection which had taken place.

One of the changes which was often mentioned was greater self-confidence. This is very important to note because the new confidence meant that new challenges were then taken on (and that further learning then took place). New understandings about growth taking place when people are out of their comfort zones, and that risk taking gives opportunities to learn, also emerge.

All of those who were interviewed said that the programmes which they had attended had started the extraordinary changes which have taken place in their careers.

All discussed excitedly the different mindset and life-view changes which they have experienced.

All eight who are now studying towards MBAs credit the development process as the motivating factor for them to have started their studies.

5.2 Concluding interpretations

The feeling about the outdated, unsuitable and autocratic management style in the company is held very strongly by all of those who were interviewed. This feeling is widespread in the company, particularly among younger staff. It has not however affected the motivation of those who were interviewed who are committed to changing

this style, and their role is being acknowledged and encouraged. (The programme is supported by the Executive Committee of the company and all Unit Directors have given their endorsement to the changes which are taking place.) There is a strong feeling of negativity towards the existing style of management and the influence of the holding company (Siemens AG, Germany) which could potentially slow down the change process which has begun.

The experiential nature of the learning, the process of learning which was to question and reflect on how things are done, and the participants rethinking their own worldviews had the biggest impacts on the learning and change which took place.

The impact of what has been mentioned, which can be accredited directly to the programmes, has been extraordinary. Dramatic changes have occurred in the lives of many of those who took part in the programmes, and the greater confidence and increased contributions which many of them have made to the company have been recognised and rewarded.

A warning was sounded in some cases about people now wanting to regularly take on new challenges and there is a danger that personal aspirations could outstrip the opportunities which the company can offer. So far however there have been few cases of people who were on the programme leaving the company, which could be an indication that this is not yet a problem.

CHAPTER 6 – CONCLUSIONS AND RECOMMENDATIONS

6.1 Summary and discussions of salient points

This study was prompted by the need to validate the ideas about the impact that learning organisations can have in complex business environments, which had germinated from the reading the writer had done and his studying through the Leadership Centre, and to investigate the success of the initiative which was started in 1999 to develop a new generation of young managers in Siemens.

Management at Siemens, because of the strong roots the company has in German culture, and because of the high technological nature of the company, has been dominated by “technical rationality” and a modern form of scientific management. When these are combined with strong hierarchy and bureaucracy, the company is poorly equipped for the challenges of the complexity of the New Millennium and the New Economy. The research on the first proposition showed that local young managers are very aware of this situation. With few exceptions they regard the management of the company to be conservative, prescriptive, and dogmatic. (The exceptions apply mostly to cases where those being interviewed reported to managers who have participated in the programme. In these cases more enlightened, supportive styles of management are experienced.)

The programmes which led to this study were started almost fortuitously. The then new Chief Executive suggested the inclusion of more academic content from what had been the case before and that what was learnt should be tested and applied to real projects in the company. A programme has been run each year and about one hundred and fifty (mainly younger) managers have completed the programmes in five years. Formally the programmes run for twelve months, and the progress of those who attended has been carefully tracked since they completed the formal part of the programmes.

Although the original main focus of the programmes was on business-school type learning, this was changed over the last few years and the programmes are now used as a vehicle to develop new leaders in the broadest sense, that is, new leaders with different worldviews.

The importance of this change needs to be emphasised because it represents the acceptance by local management that the traditional management skills needed to be

replaced by competencies which have been described variously as coming from “new paradigms” which emerge in communities which discuss and learn together.

Emphasis of the training is now on elements of learning which Peter Senge identified as those of a “learning organisation”.

The degree to which this has been achieved, that is, the degree to which the Siemens programme follows the five disciplines which are described by Senge, was also an important part of the study.

The second proposition which was aimed at exploring ideas about organisational learning gave form to discussions about the way the training took place. The elements of wholeness, the experiential nature of the learning, of reflection, and the importance of learning from one another were identified as playing a very important part in the learning and the changes which those on the programmes experienced.

The content (MBA-type syllabus) was rarely discussed; instead people spoke about the deeply personal nature of the learning. Reflection which took place in groups with lots of disagreements on how the company goes about doing business and how individuals contribute, led to new ideas and suggestions about how things could be done differently.

The learning followed a consistent process of people making a commitment to their own development, of them becoming aware of and challenging their own mindsets, and then in groups forming a community of new-generation type of managers with strong bonds and similar visions of the future.

The third proposition about the changes which were taking place and the new understandings which were emerging was discussed, and very often phrases like “new paradigms”, “life changing” and “new insights” were mentioned in the discussions. From the interviews it is clear that the fifteen staff who were interviewed have without exception changed the way they regard themselves and their careers. They unanimously attribute these changes to the training and development which started on the programmes. They are all now making significantly greater contributions to the success of the company. This has been acknowledged by the company and many spoke about the greater responsibilities which they now have and the recognition they have received.

In the next section these findings will be connected to the literature which was reviewed in Chapter 3.

6.2 Interpretation of results in terms of literature and theory

The three theories which were focused upon in this study, **Systems Theories**, **Change**, and **Organisational Learning**, will be referred to again in this section, this time in relation to the results of the research which were discussed in Chapter 5.

6.2.1 Results in relation to systems theories

The development of systems theories offers an interesting and worthwhile way of understanding and giving meaning to changes which take place in systems or organisations.

In any corporation it is especially important to understand these theories as organisational development is now taking place in a period of unprecedented change in the age of complexity. The demands on management now differ dramatically from what they were in the past and the assessment of the reaction of the management of Siemens to this complexity was part of this study.

In most cases the traditional responses of management to turbulence are not very different from when the business environment is in a state of order, with predictable changes taking place. The response of management in Siemens exemplifies the mindset of orthodox thinking and uses strategic choice and mechanistic thinking to try to tighten controls and processes to achieve a prescribed objective even today.

This was recognised by many of those interviewed who commented on the autocratic, top-down, prescriptive and often arrogant nature of traditional management in the company. This style of management is often practised in tightly coupled systems which are bound together by hierarchies, procedures and company rules (Weick 2000). The company's five year strategic plans are developed mainly by Top Management, with very little input from Middle Management or staff. Changes are made because of the non-achievement of goals and alignment is always towards regaining equilibrium and the state of

“order”. This represents management’s understanding of the system to be cybernetic.

What those interviewed recognised was that simple cause and effect reactions (however well they may be done) were unsuitable for the complex environment of business. It is now accepted that in the high technology environment of Siemens business the complex environment must be acknowledged, and the understanding in terms of systems theories must be of system dynamics, or even of complex adaptive systems. Changes to this understanding of the environment of business have started in the company and the tight coupling is giving way to Senge’s (1990) ideas about “loosely coupled” systems, which are more flexible, and which allow for the emergence of new forms, processes or patterns of behaviour.

These changes stem from an acceptance of the role the new generation of managers are beginning to play, that changes can come from inputs which have until now not been taken into account and that not all of the answers are known to management.

A generation of younger managers has emerged from the training programmes who see themselves as a community in the business (de Geus 1997), and who have new ideas and ways of doing things which are now being accepted.

The paradigm shifts needed today (Lewin and Regine 2001) have started to take place arising from understanding the business in different ways (Wheatley 1990). Those who were interviewed said that they have added insight and confidence to their professional knowledge, something which Schön (1987) said was fundamental to the changes which outstanding practioners need. They now accept risk and feel comfortable with the uncertainty and lack of equilibrium which they now regard as providing opportunities for growth.

The ability to see the whole (as opposed to an obsession with detail) was mentioned often in the interviews as was the importance of the network of relationships which have been formed. These correspond nicely with what Senge (1990) and Capra (1996) wrote about the way systems thinking can impact positively on organisations, and what can result from the acknowledgement that the business is transacted in an environment which is too complex to be

cybernetic and can be better understood by applying systems dynamics understanding or complex responsive processes.

In a sense the organisation is at crossroads – what Wheatley (1990) called a “bifurcation point”, at which the process of changing the style of management is begin amplified, and the system can no longer remain the way it is.

6.2.2 Results in relation to change

Change in itself is not a problem. It is inevitable. The problem is the discontinuous, turbulent, high speed of change that is impacting on organisations today. Those who work in high technology environments of business are especially aware of the devastating impacts this can have; those who were interviewed echoed this. Their training included challenging the way everything was being done, looking for new, innovative ways of doing things, and thinking differently.

They were certainly not averse to change. Their concern comes from the lack of a general acknowledgement from the management of the company that changes need to take place.

Pressures which are forcing management to change were easily identified but the fact is that the dominant mindset today about management (probably in most companies and certainly in Siemens) has changed very little from what it was fifty years ago.

On the other hand those interviewed are aware of how an acknowledgement of this discontinuous, unpredictable change can be a positive, generative thing. Most importantly they have seen what can happen when a paradigm shift takes place moving them from the traditional way of seeing business and events, to a more accepting, responsive, open-minded approach, which can lead to what Donald Schön (1987) described as new paradigms of “insight”, “wisdom”, “understanding” – new competencies in “the indeterminate zones of practice”.

This does not represent a “going soft” on the work which needs to be done to cope with change. It is instead a way for people to overcome their fears

(expressed by a number of those interviewed), to accept that change is fundamental to life (Schön 1973) and to use the situation for personal growth.

They have experienced the possibilities from embracing change which were offered by the company becoming a learning organisation.

6.2.3 Results in relation to organisational learning

A systems-thinking approach can be used in social systems to clarify and make explicit people's understandings. Senge's learning-organisation ideas were based on the properties of systems thinking – the parts having significance in terms of the whole (“contextual thinking”) and how components of systems interact and arrive at outcomes bigger than the constituent parts. He also used learning theories and their evolutionary nature as well as the importance of group interaction to develop his five disciplines.

The management programme at Siemens was based on the writing of Senge, and included elements of wholeness; it encouraged dialogue and questioning (the double-loop learning of Argyris and Schön – 1978) and took place in groups (Lewin 1947) in solving real-life problems in the company (Dewey 1938).

In the discussions the writer was struck by the deeply personal statements which were made by most of those who were interviewed. These statements were about how they had responded to the programmes in ways they thought were not possible. Many spoke about new ways of thinking, new confidence, overcoming fear, and the emergence of “new paradigms”. These all related to the way in which they challenged the status quo which lies at the heart of learning and come from what Argyris and Schön (1978) called “reflexive enquiry”.

Schön (1973) wrote about how when people transform themselves, and when the changes even start on the periphery, organisations start to change. Many spoke about how this is taking place: their learning is contributing to the emergence of a new order which has slowly started in the company (Lewin and Regine – 2001).

The learning which is taking place is unlike what any of those interviewed have experienced before – it is now generative and lasting and life-changing and not

the isolated soft skills type development or that based on the faddish new ideas which is so often the case in management training.

The company has recognised and acknowledged the results of these changes and has begun to tap this commitment and capacity to learn which have been described by Stacey (2000) as essential to sustain initiatives like this.

Schön (1973) called an organisation in transition a “learning society”, and Siemens has begun to show signs of becoming such a society. The process is at an early stage and the need for structures (and openness) to allow it to continue is acknowledged. Already many who were trained are involved in activities which they were not involved in before and many spoke enthusiastically about the learning (and further growth) opportunities which their new responsibilities offer and their increased contributions they are now making to the company’s success.

6.3 Discussion on deviations and anomalies

In Chapter 5 the results of this study were discussed and all three propositions were endorsed by the results derived from the analysis of the data which was collected in the research.

Before discussing possible deviations and anomalies to these findings, the writer will refer back briefly to the assumptions which were made in Section 4.6. Although they were not specifically tested the following comments can be made:

There was openness in the organisation for research of this nature to take place.

Part of the preparation for the study included a briefing before the interviews of those who would be interviewed, and a debriefing afterwards. In all cases the process was accepted as being fair and valuable in as much as it provided an opportunity for people to talk about their positive experiences. No formal briefing of managers of these individuals took place. The writer’s understanding is that although there would have been an acceptance of the study, there would have been a less enthusiastic response from them because the study and the training which had taken place did not involve any of them directly.

There was an identifiable style of management dominant in the company.

This assumption proved to be true based on the interviews without references to or assumptions about a broader study.

Managers can change the way they manage.

This assumption is true of the younger, new generation managers who were part of the study who spoke about what these changes were which had in fact taken place. It is also true of many more traditional managers who according to those interviewed have recognised and responded to the role those who were trained are playing in the organisation and how this is influencing them.

The benefits of a learning organisation can be demonstrated.

This assumption proved overwhelmingly to be the case by virtue of the increased motivation levels and responsibilities of those who were trained in what is an example of a learning organisation.

Overall the topic proved to be suitable for the research which was carried out:

- The autocratic management structure was clearly evident and was easily identified
- Information on the design of the development programme and the progress made by those who were interviewed were readily available
- There was significant personal interest in the topic (from both the interviewer and those interviewed, and from a larger group of managers who are seeing the results of the training)
- The application of learning-organisation theory which had been applied could be tested relatively easily for soundness.

Despite the validation of the assumptions and the suitability of the topic for research there were however some concerns which arose from the study which have not been addressed.

They were:

- The writer was the facilitator of the programme, and the person who set up and conducted the research. He therefore wanted a successful outcome and was looking for paradigm changes which he himself had experienced during his studies.
- The findings of the study relate to a select group. Although many others who took part in the development programme were affected in similar ways, the impact on them and their performance was not investigated.
- There was about a twenty percent drop-out rate from the programmes. (The reasons given for this were mostly work-related.) The careers and contributions of this group were not followed after they left the programmes.
- The formal, theoretical aspects of organisational development were not discussed in the interviews, and the accuracy of the interpretations which were given depended on the writer's understanding of the subject and his interpretation of the discussions which took place.
- The writer identified that elements of cybernetics, systems dynamics and complex adaptive systems (complex responsive processes) were present in the developments which took place, based on his understanding of systems theory.

The above are issues which should be taken into account when this study is interpreted.

In the next section the results are discussed further.

6.4 Significance of results

The impact that the programmes of development have had on individuals and their careers (and on the company) has been described in this study. Some uncertainties about the general applicability of the approach still exist as was mentioned in the previous subsection, and these and the larger significance of this study will now be discussed.

The study has shown how the application of a systems-thinking, Senge-type learning-organisation approach has had a significant impact on the lives, performance and careers of fifteen Siemens managers. Before generalisations about the larger relevance or value of this study can be made, further studies would need to be conducted to answer the following questions:

- What is the role played by the facilitator and his mindset?
- How does the openness (or lack of openness) of participants on such programmes and their managers influence results?
- What is the role of the managers of participants on such programmes?
- How did the support of the CEO of the company contribute to the change process?
- Should a more quantifiable approach be used to assess the results?
- How sustainable are the results to the company, i.e. will the improved performance contributions last, and will those who attend the programme remain with the company?
- When is a tipping point in the process reached when the influence from the periphery overwhelms and replaces the dominant management approach?
- How significant are the concerns which were expressed in the last sub-section (i.e. what influence did the researcher and the selection of the group have on the outcome of the study)?

These questions need to be addressed before a definite conclusion can be reached about learning-organisation approaches bringing about the sustained improved performance of staff for all organisations.

6.5 Recommendations

Despite the questions which have been raised about the limitations of this study the fact is that a large number of young managers testify to having been profoundly influenced through the programme and other interventions which were designed to equip them to manage in times of complexity.

The outcome and impacts are easily discernable in what was a conservative organisation. This encourages the writer to the extent that he is confident to recommend a programme

of this nature as an intervention and instrument for change which will impact on the competitiveness of any organisation which is open to change in times of complexity.

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CHAPTER 8 – APPENDICES

**Appendix 1 Siemens Leadership Development
Programme 2003**

**Appendix 2 The interview framework and
questions**

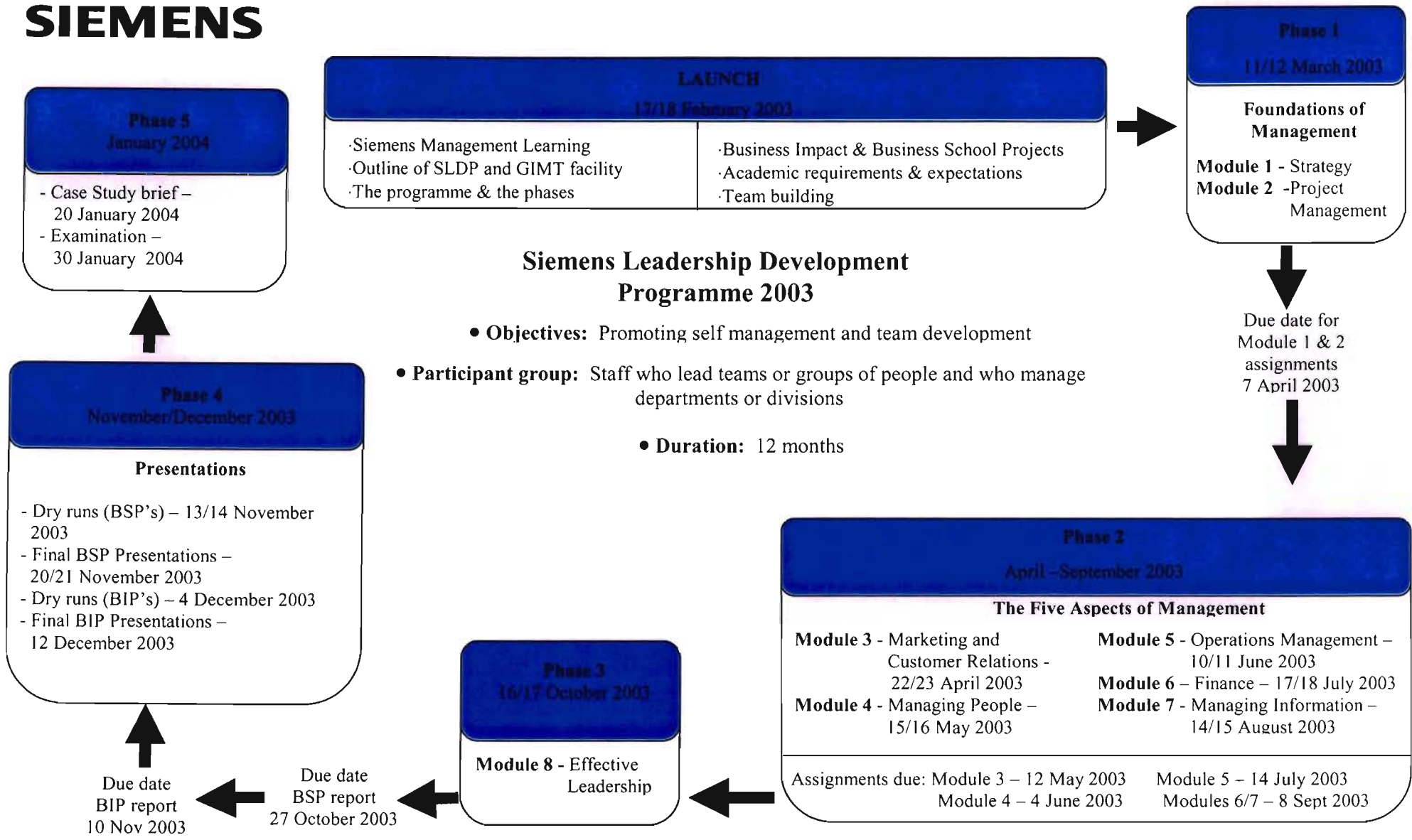
Appendix 3 Details of those who were interviewed

Appendix 4 Examples of summaries of interviews

APPENDIX 1

Outline of the Siemens Leadership Development Programme 2003

SIEMENS



APPENDIX 2

The interview framework and questions

Part 1 – to prompt discussions around the issues of the complexity of the business environment and the inappropriateness of a traditional management style.

- Question 1 What impact does the German holding company have on the style of management of the local company?
- Question 2 Describe the complex nature of your business environment.
- Question 3 What is driving the changes to the management style which are taking place?
- Question 4 What changes have taken place to the style of management in the company over the last few years?

Part 2 – to prompt discussion on the design of the company’s management development programme.

- Question 5 Describe the learning process you have been through.
- Question 6 Comment on your awareness of wholeness, experiential learning, learning in groups and from diversity, and relationship building which are part of the design of the programme.
- Question 7 What role did dialogue and the promotion of questioning play in your training?
- Question 8 If one can talk about a new “shared vision” of the group, how would you describe this?

Part 3 – to prompt discussions to find out what relevant lasting changes have affected the performance and lives of those interviewed.

- Question 9 Talk about your change of awareness/mindset/vision since doing the training.
- Question 10 How did these changes come about?
- Question 11 How are you now in charge of your own career development?
- Question 12 How did “being on the edge” (moving beyond your comfort zone) contribute to the changes which have taken place.
- Question 13 Give examples of changes which have taken place in your career over the last few years.
- Question 14 Describe your commitment to “continuous learning”.

APPENDIX 3

Details of those who were interviewed

Name	Qualifications	Year of programme	Studying towards MBAs
Abi Chebli, Joseph	BSc Eng	1999	✓
Baloyi, Marhulani	ND	2003	X
Barr, Elaine	A-levels	2000	✓
Claasen, Neil	BCom	2001	X
De Vries, Debbie	HND	2002	✓
Flaum, Alvin	HND	2003	X
Glynos, Marlene	HND	2003	X
Lightfoot, Denzil	HND	2001	✓
Mackay, Adam	MSc Eng	2003	X
Mandy, Gavin	HND	2002	✓
Nkosi, Smangele	BCom	2003	X
Olivier, Lionel	HND	2001	X
Perold, Cornu	HND	2000	✓
Schindler, Lizelle	BA	2003	✓
Venter, Stephen	HND	1999	✓

APPENDIX 4

Examples of summaries of interviews

Interview with Joseph Abi-Chebli

Part 1

“One cannot question the success of the global company – over 100 years old!

The business culture here in SA is affected by the German culture.

It is very bureaucratic, but changes have started appearing which have been noticeable in the last ten years.

The new style in SA is driven by technological changes (but this applies to most high-technology companies which have also become noticeably smaller).

The projects (consultant driven) of the 1990s had no lasting impact.

There is still strong prescription (and interference) from SAG (silo structures).

Change must happen (as it is happening in SA) – it is technology driven (is happening because of the technology changes)

We don't have a choice: we must change.

Changes are externally driven (by our markets and by technology), but also come from the demands of the new generation of young engineers:—

They are very different from 10-15 years ago

- they question and challenge everything
- they are very employable and are difficult to keep
- they do not accept decisions that are made that they do not like
- managing them challenges the ‘old style’”

Part 2

“My view of the company was ‘opened up’ – the training gave me a bigger view.

Previously I was not interested beyond my engineering discipline. I have been taught how to think and it opened my mind.

One questions more and becomes more critical.

People during the training formed a common business language.

Previously I could not argue and discuss what management or Siemens Germany said – this I was taught to do, to question.

The new ideas were a starting point, a framework for me.”

Part 3

“The training developed my flair for business – what it did was to change me from a technical manager to a business manager.

I am now close to people from different disciplines (e.g. Strategy).

We have become empowered.

The training made me more responsive.

The insecurity of learning new things and new ways of doing things was needed, and you adapt to it.

I changed my view of life, business – gave me a different paradigm about the company.

I am now a life learner and have developed a love for business!

The process of change was made easier because I ‘report to a learner’.”

Observations

JAC expressed concern about the fact that with the new ideas, enthusiasm etc, he is not sure that the company can now use him fully! There is, he thinks, a problem to accommodate him.

The company is not growing – learning implies taking on new responsibilities – where to now?!

JAC will complete the Henley MBA this year which he started studying after he completed the company programme.

He was selected to be a guest auditor by Siemens Germany of the Siemens China operations earlier this year – a huge acknowledgement to his ability and business understanding.

Interview with Adam Mackay

Part 1

“My soft approach can be seen as a weakness.

The dominant style of management is strong autocratic – it gets results, but it is not sustainable.

Technology ten years ago was less user friendly; this means that today customers are more aware.

It is a lot more competitive.

Well trained clients can critique suggestions made in tenders.

Being the best (quality) makes you arrogant.

Due to competitiveness customers no longer wait – they have many options.”

Part 2

“When I started on the programme I thought I knew most of the theories; but I had become outdated

I work with engineers – we always think the same!

In the diverse groups we learnt from each other.

The learning helped me to argue my point (and to give reasons).

We now use the same vocabulary.

The structured approach has overflowed into the rest of my work.

The dialogue approach was good, but time consuming. In the final analysis we had to decide.”

Part 3

“The programme brought about a paradigm shift.

I am a perfectionist – I have broken up my career plan into time spans.

I will tell my manager when I disagree and give reasons for it!

I learnt how to handle people (customers) – and I learn from all interactions.

Networking (sponsors) is so important now.

I think strategically – I was previously not attuned to the environment.

I was pulled out of my comfort zone. I was doing the same thing over and over again. Whatever I did I knew the outcome.

I then did the programme, and changed my technical area. Previously I would never have had the courage.

For me the changes are very exciting.

The course was a catalyst to my changing.

I am doing technical courses which I have not done for a very long time. I want to learn.

Next year I want to do formal studies (MBA).”

Observations

AMK has an MSc Engineering having been an AA bursar of the company in the early 1990s. His career stagnated until he attended the programme.

Not only has he moved from the rut of the position he was in (his request) he is also noticeably, outwardly changed (even the way he walks and talks).

This has been an amazingly, truly worthwhile development.

Interview with Smangele Nkosi

Part 1

“There is a German way doing things – do it this way or no way!

Germany makes our lives difficult. (We fight more among ourselves than with our customers.)

It may be a company culture thing (but Daimler Chrysler also German, is the same).

The culture influences us here in SA, i.e. arrogance (from over confidence).

Cheaper solutions are competing with us now – especially in Africa.

“Voice over IP” can kill our own business!!

We have to continually adapt.

Companies are no longer looking after you – you have to look after yourself.”

Part 2

“I gained a great deal from it.

I now can say “you can’t arrive at a conclusion until you have done this and this” – unlike previously.

We learnt to think.

The learning from the group was more than what you get from normal work.

I got a broader understanding on business.

We had great diversity (including ages) in our group.

Gained confidence from the positive results I achieved.

We got to know our group's weaknesses and strengths."

Part 3

"From job grade 7 to 5 in 1½ years – from project commercial to divisional commercial manager!!

I have grown personally.

I can now sit back and analyse situations and people.

My boss said "you have grown tremendously."

Dealing with situations I am much more confident – I have the confidence not to be pushed around.

I have a great network of contacts.

I have been in my new position for three months. Although the business is secure and more mature I still can't relax.

As a black women I have to prove myself even more.

I have postponed studying, but will probably do an MBA next year."

Observations

SN is a confident, new-age black woman in business. How great for the company!

Interview with Lionel Olivier

Part 1

“Business has become more demanding from the fact that the company now interacts with difficult, less loyal customers.

Demands are for greater professionalism.

Solid arguments of “why Siemens” (business plans, benefits cases, business models) are demanded.

Customer relationships have to be formed at all levels.

More negotiation takes place.

You can break the rules if you have a good argument to do so.

Although the young staff are more “street wise” they have not yet made a significant impact on management.

Existing traditional managers feel that everything is “given” and work “in the grove”.

The Gemini project eight years ago (to establish key account structures) set the new direction which we have retained.

Humbanathi is forgotten – half a commitment to a change initiative is much worse than nothing.”

Part 2

“The programme allowed practical application to emerge. “Hot” debates took place in teams during training, but this sometimes slows progress being made. (Still happy with the progress though.)

I saw more business disciplines and this “opened me up”.

The combination of the learning processes changed my mind set.

Arguments were the eye openers.

Outside of the formal one year, the informal learning (e.g. strategic forums) could not stimulate thought in the same way. We should have put 750 and not only 150 people through the programme.”

Part 3

“After a year “I had changed”.

The programme forced me into “re-thinking”.

Moved during the programme from a technical to a strategic position.

I was moulded by the company – that is just the way it is.

Given the insight I no longer have a technical/project view of business.

I became the messenger to management of professional ways of doing business.

It did work – look at me three years later.

Staff who learnt from the old style are now learning from the new style.

Everyone must get on the programme.

Ambition makes you want to change – fear makes you want to not change.

By showing the ability (a limited resource) you get more load, and get bogged down – management wants more of what you do well. You work and your private life suffers.

Where do I go from here?”

Observations

LO has been promoted recently to understudy the Group Strategy Director and in this position will facilitate scenario and strategy plans for half of the Business Units of the company.