

ACCOUNTING INFORMATION ON FLEXIBILITY

by

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Abstract

Recent research has shown that flexibility is an essential characteristic of successful enterprises in a highly competitive and rapidly changing business environment. Management and accountants should not only understand flexibility but also be able to create flexible organisations and measure the flexibility levels and mixes. Flexibility is however a nebulous, elusive and multidimensional concept which is poorly understood and seldom measured and monitored in organisations.

The aim of this research is to define the construct flexibility, to demarcate its borders and to propose a framework which explains its multiple attributes in organisations. The framework is then used as a basis to develop flexibility measures and indicators for management and accountants to identify current levels of flexibility, determine flexibility targets, monitor progress in meeting targets and signal direction. It is suggested that the accounting information system can be used as the means of recognising, measuring and communicating information on flexibility to stakeholders of organisations. The introduction of information on flexibility into Accounting may also serve to address some of the criticism levelled at accounting discipline. This may result in Accounting becoming more flexible and able to adapt to the changing demands of a competitive business environment.

Opsomming

Onlangse navorsing dui daarop dat buigsaamheid 'n noodsaaklike eienskap van suksesvolle ondernemings in 'n hoogs mededingende en vinnig veranderende sakewêreld is. Bestuur en rekenmeesters moet derhalwe nie net buigsaamheid verstaan nie, maar ook buigsame ondernemings kan skep en buigsaamheidsvlakke en -kombinasies kan meet. Buigsaamheid is egter 'n vae, moeilike omskryfbare en veeldimensionele konsep wat swak verstaan word en selde in ondernemings gemeet word.

Die doel van hierdie navorsing is om die konstruk buigsaamheid te definieer, die grense daarvan te identifiseer, en 'n raamwerk daar te stel wat die veelvuldige eienskappe van buigsaamheid in ondernemings verklaar. Die raamwerk word dan gebruik as 'n basis vir die ontwikkeling van buigsaamheidsmaatstawwe en -aanduiders wat bestuur en rekenmeesters kan gebruik om huidige vlakke van buigsaamheid te identifiseer, buigsaamheidsdoelwitte daar te stel, vordering in die bereiking van hierdie doelwitte te monitor en rigting aan te dui. Daar word voorgestel dat die rekeningkundige inligtingstelsel gebruik kan word as die middel vir die erkenning, meting en kommunikasie van inligting oor buigsaamheid aan belangegroepes in ondernemings. Die bekendstelling van inligting oor buigsaamheid in Rekeningkunde mag ook bydra om sommige van die kritiek teenoor die rekeningkundige dissipline aan te spreek. Dit kan daartoe lei dat Rekeningkunde meer buigsaam word en dus beter in staat is om by die veranderde eise van 'n mededingende sakewêreld aan te pas.

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List of abbreviations

AC	Accounting Standard
APB	Accounting Principles Board
AICPA	American Institute of Certified Public Accountants
AIMR	Association for Investment Management and Research
CAD	Computer aided design
CAM	Computer aided manufacturing
CICA	Canadian Institute of Chartered Accountants
CIMA	Chartered Institute of Management Accountants
DCF	Discounted cash flow
DM	Discussion Memorandum
DP	Discussion Paper
ED	Exposure Draft
EEC	European Economic Community
FAR	Flexibility Audit and Redesign
FASB	Financial Accounting Standards Board
FMS	Flexible manufacturing systems
GAAP	Generally Accepted Accounting Practice
IAS	International Accounting Standard
IASC	International Accounting Standards Committee
IFAC	International Federation of Accountants
ICAEW	Institute of Chartered Accountants of England and Wales
ICAS	Institute of Chartered Accountants of Scotland
JIT	Just in Time
MNE	Multinational Enterprises
MIS	Management information systems
R&D	Research and Development
ROI	Return on Investment
SAICA	South African Institute of Chartered Accountants
SBU	Strategic Business Unit
SEC	Securities and Exchange Commission
SFAC	Statement of Financial Accounting Concepts
SFAS	Statement of Financial Accounting Standards

List of definitions

Accounting refers to the accounting discipline, theory and practice, the accounting information system and the profession. It includes both Financial Accounting and Management Accounting.

Corporate reports refer to financial reports drafted for external and internal users within the organisation.

Financial reports refer to the financial statements and other reports such as the directors' report, the chairman's report, the employee report, social report and value added statement, drafted for external users.

Financial statements refer to the balance sheet, income statement, cash flow statement and notes to the financial statements.

Flexibility is the process of being aware, responsive, willing and able to take action to reposition the resources and functions of the organisation in a manner consistent with the evolving vision, strategies and goals of management as they respond proactively or reactively to new information on foreseen and unforeseen change in the organisation and its environment.

Indicators refer to financial and non-financial measures which are measured in figures. It thus excludes qualitative information.

Measurement refers to the allocation of figures or values to attributes used in an accounting context. It includes both financial and non-financial measurements.

Measures are used in a broad context to include ratios, indicators, targets and qualitative descriptions.

Chapter 1 Introduction

“Flexibility is one of the most important adaptive criteria for realistic planning. Needs, as well a goals, change with great rapidity and we must remain flexible enough in our planning to adapt to these changes. We must not only handle the problems of today, but be prepared to meet the needs of tomorrow.”

(Mase, 1970)

1.1 Overview of research area

The phenomenon of flexibility in business organisations was observed and studied as far back as the late sixties. In a pioneering study Gordon Donaldson (1971) observed flexibility in financing of businesses. He saw that the behaviour and decisions of managers did not always follow the proposed optimising theory with regard to corporate finance. An aim of finance theory is amongst others, to find the correct mix of debt and equity that minimises costs and maximises value at a point in time. This aim is based on the basic assumption that the ultimate financial objective of a business is to maximise shareholders' wealth. In practice, however, Donaldson found that managers did not concentrate on optimising the use of debt, but rather on the magnitude of the debt *not* in use. These unutilised sources of funding served as a buffer against unexpected future events and the aim of management was apparently to achieve flexibility through having access to additional funding. This flexibility created alternatives or options for management when having to deal with an uncertain and unpredictable future. Thus, the aim of being flexible often supersedes the aim of optimising the use of debt in relation to equity.

Donaldson (1971, p.8) called the capacity of management to redirect the use of financial resources in response to new information, financial mobility. He validated the existence of this behaviour of management in three case studies that focused specifically on corporate finance decisions. His work on financial mobility (also called financial flexibility) indicates that the corporate finance theories do not adequately reflect reality. The behaviour in the real world differs from the approaches suggested in theory, and the phenomenon of flexibility provides an explanation for the deviance.

Flexibility may also explain deviating management behaviour in costing, investing, cash management and reporting.

Ansoff (1965, p.55) is another of the earlier authors who addressed the concept of flexibility. He described two types, namely internal and external flexibility. External flexibility is seen as positioning of the organisation by “not putting all one’s eggs in a single basket”, whereas internal flexibility is seen as “seeking to provide a cushion in response to catastrophe”. Both types are used by the management of organisations to deal with unforeseen change, contingency and catastrophe.

The concept of flexibility has been explored by a number of researchers in Management Theory (for example, Eppink, 1978; Kanter, 1982; Handy, 1995; Aaker & Mascarenhas, 1984). These and other studies recognise the importance of enterprises being flexible in a dynamic and unpredictable environment. Yet Volberda (1998) still believes that flexibility is only beginning to be explored. The aspect of flexibility that is the least researched is that of measurement. Gerwin (1993) suggests that the measurement of flexibility is the *single most important research priority* in this area.

Measurement of information is the domain of accountants. Until quite recently, however, the phenomenon of flexibility was not pursued in Accounting literature. Several authoritative textbooks in Accounting did refer, if only in passing, to the work on financial flexibility (Hendriksen & Van Breda, 1992; Kam, 1990; Correia, Flynn, Uliana & Wormald, 1993). Other research studies concentrated on aspects of flexibility such as flexibility in financing, in using cash, in manufacturing products and in entering new markets. In research on financial flexibility, for example, cash flow statements, liquidity and solvency are emphasised. Standard setters have several times attempted to mandate the inclusion of some information on financial flexibility in the financial statements but have not succeeded to date. Two important documents on the disclosure financial flexibility in financial reports were published by the FASB (*Discussion Memorandum on reporting funds flows, liquidity and financial flexibility*, 1980b) and the AICPA (*Exposure Draft on the disclosure of certain significant risks and uncertainties and financial flexibility*, 1993). In both documents it is acknowledged that the assessment of financial flexibility of an enterprise is an

important factor in the decision-making process of managers, and the suggestion is that information on financial flexibility would be useful to users of business information.

Another area of research on flexibility that is explored in Accounting concerns DCFs. Models of DCF are criticised for failing to incorporate the element of management flexibility, the consequence of which is that investment opportunities are often undervalued (Hayes & Abernethy, 1980; Hayes & Garvin, 1982; Trigeorgis & Mason, 1987; Trigeorgis, 1993). Researchers argue that the inclusion of the value of management flexibility options in the DCF models would enhance their usefulness and reliability.

A number of studies consider the importance of creating manufacturing flexibility in organisations. Kulatilaka and Marks (1988) link production flexibility and strategic choice, while Kulatilaka (1993) uses the ability of a business to choose between different types of machines to illustrate the value of flexibility. Parthasarthy and Sethi (1993) consider the relationship between quality and flexibility strategies and flexible automation. Abernethy and Lillis (1995) investigate the relationship between accounting information and firms with a commitment to manufacturing flexibility.

Marketing flexibility is recognised by Harrigan (1985) and is defined as the firm's ability to reposition itself in markets, change its game plans, or dismantle current strategies. The ability of MNEs to create geographical flexibility by hedging their positions against future changes in tax legislation, government policies and exchange rates of different countries is described by Kogut (1985) and Muralidhar (1992). Their research suggests that the management of MNEs may create additional value for their stakeholders through geographical flexibility.

From the above it is apparent that certain aspects of flexibility have been addressed in the literature. Yet there appears to be few coherent frameworks or structures which encompass the nature, attributes and types of flexibility in business organisations. Financial flexibility, for example, addresses the ability of a business to raise finance whenever unexpected events occur. However, this is only one area of a business in which flexibility may be created. It could for example be created in such

diverse areas as the design and manufacture of products, in the mind set of employees and in positioning of the organisation in global markets. *A research opportunity therefore exists for the development of a construct of flexibility that includes all attributes of flexibility within the organisation and for the exploration of the nature of these different types of flexibility.*

The interest in flexibility in the literature may be explained in terms of the relationship between flexibility and uncertainty. Current literature indicates that the extent of uncertainty has increased substantially since the 1970s and that change in the environment is becoming more unpredictable and discontinuous (Nadler & Tushman, 1995). It follows that enterprises should place a higher premium on flexibility as a business attribute and the phenomenon of flexibility should become increasingly important to organisations in the current dynamic business environment. *A research opportunity therefore exists to explore the role and importance of flexibility in organisations.*

If flexibility is important to the well-being of organisations in a changing business environment, information on flexibility should be useful and be communicated to both internal and external users of business information. The accounting information system provides a means of communicating such information. Although the accounting system has been criticised recently for being unable to adapt sufficiently to changing needs of users of information, it has an existing infrastructure for the communication of information. *A research opportunity exists regarding the introduction of the construct of flexibility into Accounting and the development of procedures for the recognition, measurement and communication of information on the different types of flexibility within the accounting information system.*

1.2 Problem area and purpose of research

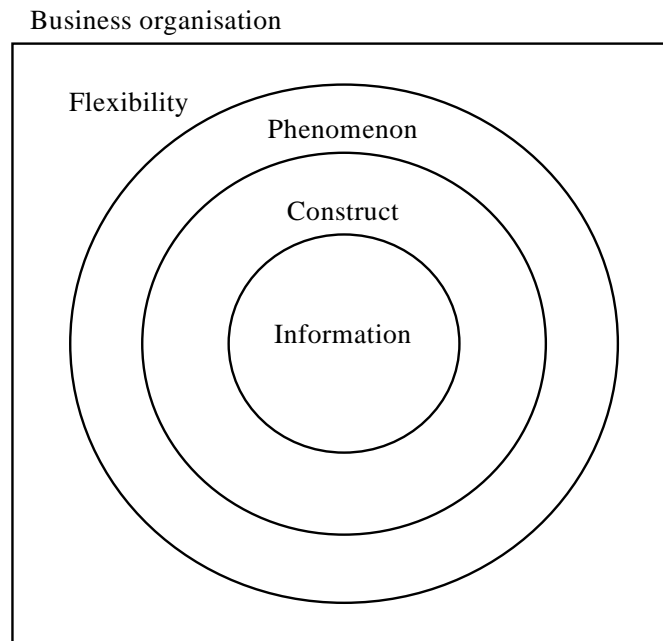
The problem addressed in this thesis concerns the apparent inability of Accounting and its accounting information system to adapt quickly and efficiently to the changing demands of users regarding business information. The accounting system has been described as an inflexible information system which fails to adapt sufficiently to rapidly changing business environments (see Lee, 1987; Turney & Anderson, 1989; Allen, 1994).

The introduction of flexibility into Accounting may address the problem in two ways. First, the inclusion of information on flexibility may enhance the usefulness of accounting information. As uncertainty increases and flexibility becomes more important to the success of organisations, information on the different types and levels of flexibility in organisations should provide users with decision useful information. The lack of information on flexibility in the information system may result in incomplete information, uninformed decisions and an inefficient allocation of scarce resources. Second, the creation of an awareness of the importance of flexibility in the current business environment may sensitise accountants, standard setters and academe to the need for Accounting and its subsystem to become more flexible itself if it is to retain its relevance in an environment of increasingly discontinuous change.

The phenomenon of flexibility has been observed in the behaviour of management in organisations. A confusing array of definitions and terms has however been used in the literature to describe this complex and elusive phenomenon. The purpose in this thesis is to conduct exploratory research on the phenomenon of flexibility. The research therefore commences with a refinement of “flexibility” into a construct. The construct is developed by defining the term, delineating the field of study, categorising the different types and levels of flexibility and their strategic dimensions and discussing the role of these categories in the organisation. The main purpose of the research is to introduce the construct into Accounting and its information system by identifying information on flexibility that can be measured and communicated to users. This is followed by proposals on procedures that management and

accountants may use in developing the necessary measures. The procedure followed in this thesis in developing information on flexibility is illustrated in figure 1.1.

Figure 1.1 : Development of information on flexibility



Source: Own observation.

In addressing the first research opportunity, the importance and role of the construct of flexibility in the organisation and the nature of the different types and levels of flexibility in the organisation is explored.

Two main assumptions are made regarding the nature of flexibility:

- Flexibility is a function of *uncertainty*. The higher the levels of uncertainty in the organisation and its environment, the greater the value attached to flexibility in an organisation.
- Flexible organisations are more likely to *survive* in a turbulent and competitive business environment than inflexible organisations. This implies, provided all other variables remain constant, that a flexible organisation will have a lower risk profile than an inflexible organisation.

Although several authors on flexibility support these assumptions, they are not backed by sufficient empirical evidence.

To meet the second stated purpose of the study, the following secondary assumptions are made:

- Flexibility is a *discriminate* construct. In other words, flexibility is a phenomenon that may be used to distinguish the “good” from the “poor” performers in situations of uncertainty and instability.
- Flexibility is an *observable* construct. This implies that its influence can be observed in the behaviour of persons both inside and outside the business organisation.
- Flexibility is a *measurable* construct. This means that different levels of flexibility can be measured, thus allowing comparison over time in one company and between companies and industries. Here “measurement” is used in an accounting context, although it is not restricted to financial or quantitative measures.
- Flexibility is an *operational* construct. This implies that it can be implemented and used by the management of a business to improve its performance, strategy and competitive position.

From the above assumptions follows the proposition:

- Information on flexibility is useful to *decision making*. This means that information on flexibility can influence the decisions of a broad spectrum of internal and external users if it is recognised, measured, communicated and understood.

Flexibility arises from the capability of management to proactively adapt the organisation to changes in the environment or the influence to environment, so as to avert unforeseen threats and catastrophes and exploit opportunities. The construct as developed in this study is not presently recognised in Accounting. While some attributes of flexibility are described in Accounting, it is not done in a coherent or

organised manner. The term financial flexibility is for example used often in the analysis and interpretation of cash flow statements. Areas that have been researched in Management Accounting concern management flexibility, which is achieved through flexibility in the production of goods and services and flexibility available to MNEs through arbitrage. In this thesis the construct flexibility is introduced into Accounting and the accounting information system and a coherent framework as well as procedures for the recognition, measurement and communication of information on flexibility are proposed.

The impact of this construct will of necessity extend beyond the borders of the discipline of Accounting. Related disciplines such as Auditing, Finance, Business Management, Management Information Systems, Management Science, Communication Theory and Organisational Theory will also be influenced by flexibility. However, it is not the aim of this research to consider the impact of flexibility on these disciplines.

The thesis cannot presume to achieve more than providing an introduction to and demarcation of a new field of research in Accounting. It will require further research and validation before a robust framework for the inclusion of information on flexibility in the accounting information system is likely to emerge.

The research on flexibility should be useful to –

- *management* in positioning their organisations advantageously in an increasingly volatile and competitive business environment. The different types of flexibility should create an awareness of the multi-faceted aspects of the construct and the potential for using them to create competitive advantages for a business. The suggestions on the type of information on flexibility and the procedures for measurement and recognition may assist management of organisations to develop their own set of flexibility targets, which may be monitored over a period and be compared to the performance of competitors;

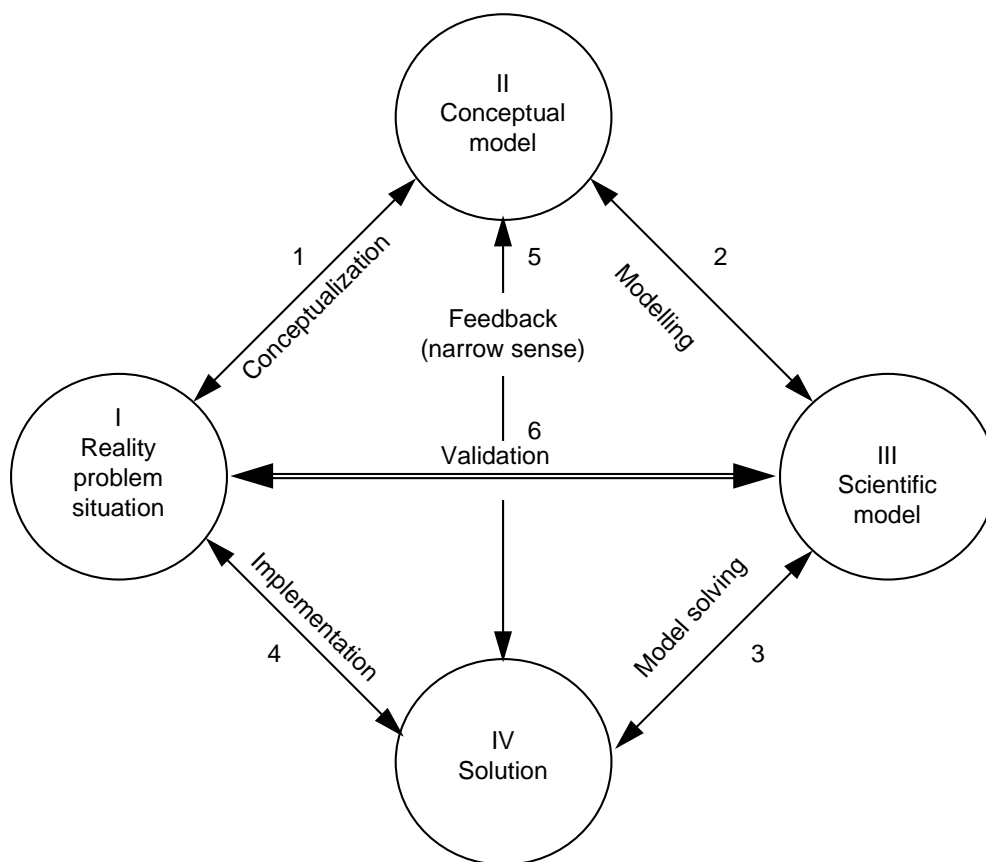
- *employees* of organisations in developing an awareness of the importance of being flexible oneself and creating and sustaining a flexible organisation which is able to survive and succeed in an unstable business environment. Flexibility enables the rapid and effective adaptation and repositioning of an organisation and its people ahead of its competitors;
- *accountants* in creating an awareness of the importance of flexibility to the information age company. The suggestions on the information on flexibility that may be communicated to both internal and external users of financial information and the procedures for developing such measures may serve as guidelines for developing and implementing custom-made targets of flexibility for their organisations;
- *investors and other external users of financial information* in creating an awareness of the importance of flexibility for the survival of organisations in a volatile and competitive business environment and therefore the importance of including measures on the flexibility of companies in the assessment of company performance;
- *standard setters* in emphasising the need for organisations to provide more information on flexibility in financial reports. The introduction of the construct of flexibility into Accounting may also help to address several of the shortcomings of current reporting practice;
- *researchers in Accounting* in suggesting a new field of research to be explored;
- *researchers in related disciplines* in considering the impact that the construct of flexibility may have on them; and
- *educators* in creating an awareness of the importance of flexibility in an information age organisation, which may in turn result in the inclusion of this construct in syllabi and its introduction to students.

1.3 Scope and structure of research

In this section the extent of the research and the chapter organisation are addressed. As suggested by the title, the aim in this thesis is to introduce a new

construct, namely flexibility, into Accounting and the accounting information system and to develop a framework for the identification and measurement of information on flexibility. This information can then be communicated to users by means of the existing accounting information system. More specifically, the scope of the thesis may be explained in terms of the model for problem solving designed by Mitroff, Betz, Pandy and Sagasti (1974). The Mitroff model is represented diagrammatically in figure 1.2.

Figure 1.2 : A system view of problem solving



Source: Mitroff, I. I., Betz, F., Pandy, L. R. & Sagasti, F. (May, 1974) On managing science in the systems age: two schemes for the study of science as a whole systems phenomenon. *Interfaces*, Vol.4, No.3, pp.46-58.

The model takes a holistic or systems view of the different varieties of scientific activities. Because of the circularity inherent in this view, the diagram actually has no predefined start or end points. A research project could begin at any of circles I, II, III or IV. For instance, it could start at circle I, with an existing problem situation. The

first phase of problem solving would then entail the performance of activity 1 so as to devise a conceptual model in circle II. The conceptual model sets out in broad terms the definition of the particular problem that will be solved, it then specifies the field variables that will be used to define the nature of the problem and the level at which the variables will be treated.

The next phase would entail the performance of activity 2, namely the formulation of a scientific model in circle III. A scientific model is a set of either qualitative or quantitative logical relationships, which link together the relevant features of the reality with which we are concerned (Rivett, 1972, p.9).

The third phase would concern the performance of activity 3 to derive a solution (circle IV) from the scientific model while an implementation activity 4 would entail a feedback of the solution to the original problem situation. In validation activity 6 the degree of correspondence between reality and the scientific model may be evaluated. Finally in activity 5, namely feedback in the narrow sense, problem-solving activities (circles II, III, IV, II) is applied, with the goal being to derive better scientific solutions.

Given the simple system of interconnected elements of figure 1.2, the authors computed that a total of 3 555 research subsystems can be formed by considering all possible combinations of two, three and four elements (Mitroff *et al.*, 1974). Each of these subsystems represents a different type or form of scientific activity. This implies that legitimate research need not address all of the activities and elements in the model.

The scope of the research on flexibility in this thesis is confined to circles I, II, III and IV and activities 1, 2, 3 and 5. Activities 4 (implementation) and 6 (validation) are not undertaken.

Chapter 1 commences at circle I and demonstrates the existence of a *problem situation*. The problem situation is the apparent inability of Accounting to adapt quickly and efficiently to the rapidly and continuously changing demands of users of business information.

In chapters 2, 3, 4 and 5 the *conceptual model* of circle II is developed. Here the elements or variables necessary for defining the nature and extent of the problem, as well as the perspective adopted in the research, are specified.

Chapter 2 contains a review of the purpose of accounting information in the organisation and in society. It is based on a dominant paradigmatic perspective that accounting information should be decision useful (SAICA, 1990; FASB, 1978; Belkaoui, 1992).

In chapter 3 the rapidly changing business environment is considered. It is noted that the increasing volatility in the environment may pose a threat to the survival of business organisations that fail to adapt swiftly to environmental changes.

Chapter 4 consists of a literature survey to identify the responses required of businesses and their management in adapting to such a volatile and competitive business environment. These responses are addressed as prescriptions to organisations and their management in managing change.

Chapter 5 consists of a literature survey in Accounting. It identifies both criticisms levelled at Accounting and the variables of the conceptual model as challenges confronting Accounting and accountants in adapting to the changing environment, consisting of the organisation, industry and society. The challenges can be used as criteria with which the suggested changes to Accounting and the accounting information system, through the introduction of flexibility, may be compared. The suggestion is made that the introduction and development of the construct of flexibility may help to solve some of the challenges encountered in the field.

In chapter 6 the *scientific model* envisaged in circle III is developed. By means of the execution of the activity which is located between circle II and circle III, namely modelling, the construct of flexibility is defined, the field of study is demarcated and the significant relationships of the construct are formulated. The modelling activity leads to the development of six categories or types of flexibility, that is, production, marketing, financial, informational, human, cultural and organisational and

geographical flexibility. Further the suggestion is that three levels of flexibility exist, namely required, actual and potential flexibility, and that flexibility can be achieved through the four strategic aspects of cost, quality, time and range.

The first two research opportunities, which are identified in the section 1.1, namely development of the construct and exploration of the role and importance of flexibility in the organisation, are thus addressed in chapter 6. The division of the construct into six categories promotes the development of a coherent framework for identifying and measuring information on flexibility.

In chapter 7 the scientific model is applied to the *solution* in circle IV. The classification model is then used as the basis for developing accounting information on flexibility within each category. The third research opportunity identified in section 1.1, namely the development of procedures for the identification, measurement and communication of information on the different types and mixes of flexibility, is thus addressed in this chapter

In chapter 8 the *feedback in a narrow sense* envisaged in activity 5 is performed. Proposals for information on flexibility are compared with the criteria for change required in Accounting, as was identified in chapter 5. A conclusion is reached on the contribution of the introduction of the construct of flexibility and the recognition, measurement and communication of information on flexibility in addressing the challenges confronting Accounting and accountants.

Finally, chapter 9 assesses the viability and usefulness of the construct of flexibility in Accounting and its information subsystem. It contains a comparison between the outcome of the research and the assumptions and proposition identified in chapter 1. It closes with a discussion of the areas requiring further research, and provides a brief preview on possible future developments in this field.

The *validation* of the research in activity 6 has not been performed. As the construct of flexibility as proposed in this thesis is relatively new to management and accountants, an empirical validation, both with regard to the manner in which flexibility is managed in the company and the current practice in the accounting

information system, is deemed to be premature. This would be viable only once an awareness of the importance of flexibility to the organisation has been created among management, employees, accountants and other stakeholders. The construct should thus first be developed and tested in individual organisations and its impact observed before it can be validated.

As a result of the above motivation the *implementation*, activity 4, has not been performed either. The implementation of the proposals on information of flexibility has to be effected on a company by company basis. The types of targets and indicators developed to measure different kinds of flexibility in each company will depend on the goals, core competencies and critical performance areas of each one. Prior to implementation in the accounting information system, each company will thus have to develop and test its own customised measures of flexibility. Because of the need to create an awareness of flexibility before implementation and particularly customised implementation could be brought about, the implementation activity was not performed in the research.

In the next section the underlying theoretical and philosophical assumptions adopted in this research are identified, followed by a discussion of the research methods which were used.

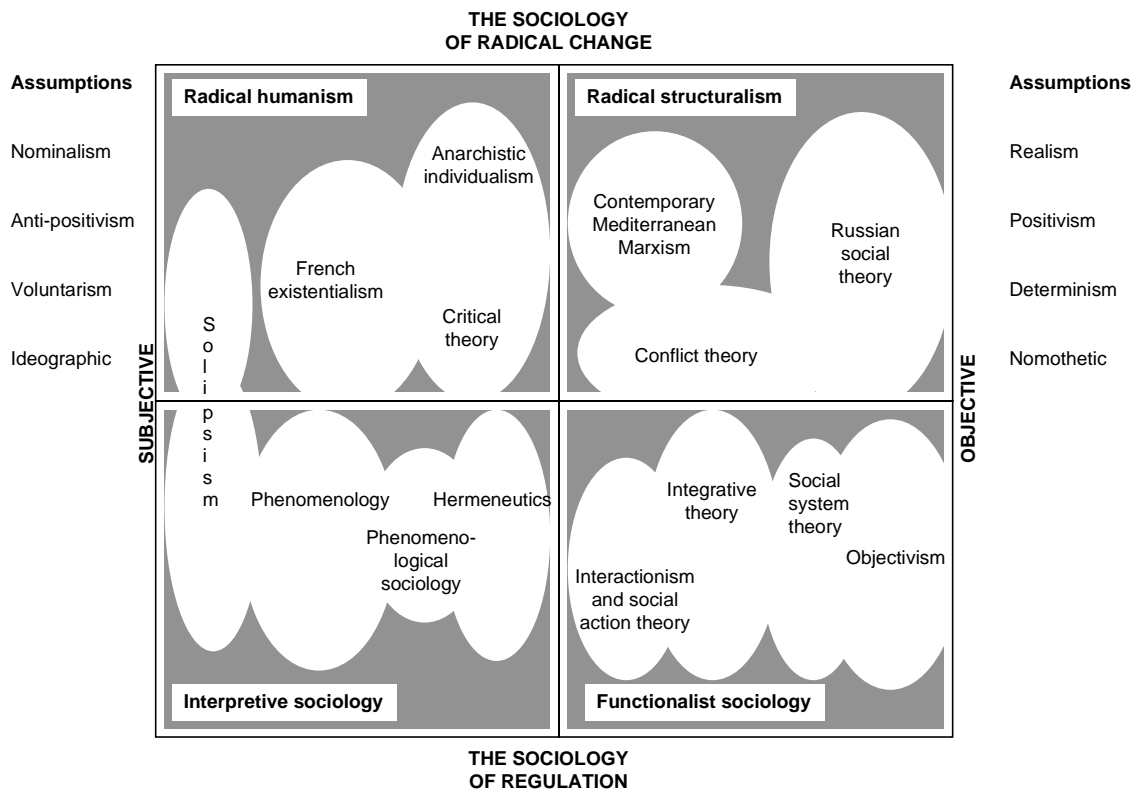
1.4 Methodology and research method

Certain philosophical assumptions underlie each of the approaches to research in the Social Sciences. Puxty (1993, p.4) believes that in order to understand research it should be viewed in the context of the underlying web of beliefs and reasoned arguments. Hopper and Powell (1985) contend that certain fundamental theoretical and philosophical assumptions are fundamental to any piece of research and that there is no such thing as a totally objective and value free investigation. It is therefore important that researchers state explicitly in their research their views on the nature of reality, the grounds of knowledge and the interactions between human beings and their environment. These assumptions which underlie research tend to

incline social researchers towards adopting certain methodologies and research methods. Research methods selected may also be influenced by fashions in social science research (Sperber, 1990).

Burrell and Morgan (1979) developed a framework of the different research assumptions underlying Social Science. This model is used to identify the underlying theoretical and philosophical assumptions adopted in this thesis. Their framework, presented in the form of a matrix, consists of two dimensions or sets of assumptions about Social Science and society. The social science dimension is based on a subjective–objective dimension, as shown in figure 1.3. It consists of four assumptions about research in Social Science, namely ontological assumptions about the social world, epistemological assumptions and assumptions about human nature and about methodology.

Figure 1.3: The four sociological paradigms



Source: Burrell, G. & Morgan, G. (1979), *Sociological paradigms and organisational analysis: elements of the sociology of corporate life*. London: Heinemann p.22.

The *ontological* assumption involves the nominalism–realism issue. The issue centres around whether the social world external to individual cognition is a compound of pure names, concepts and labels which gives structure to reality – as in nominalism – or whether it is a compound of real, factual and tangible structures – as in realism (Belkaoui, 1992, p.513).

The *epistemological* issue addresses the grounds and nature of knowledge and centres around the positivism versus anti-positivism debate. Positivism holds a belief in the utility of searching for general laws applicable to Social Sciences while anti-positivism refutes the approach of finding general laws and supports individual participation as an integral condition for understanding the social world.

The *human–nature* issue is based on the relationship between humans and their environment – the so-called voluntarism–determinism debate. Determinism holds

that human activity is determined by the environment or by situation, while voluntarism suggests that human activity takes place of free will.

The *methodology* issue addresses the research methods used to study the social world and involves the ideographic–nomothetic debate. The nomothetic view supports a method of rigorous, structured and scientific testing of hypotheses, while the ideographic view supports the analysis of subjective accounts by participating in the situation being researched.

The second dimension of the matrix which may impact on the research approach of social scientists concerns the assumption about the nature of society. Society may be viewed as stable and orderly or subject to radical change and conflict. According to Burrell and Morgan (1979) the sociology of regulation is concerned with the *status quo*, social order, consensus, social integration, cohesion, solidarity, need satisfaction and actuality. The sociology of radical change, in contrast, is concerned with structural conflict and models of domination, contradiction, emancipation, alternation, deprivation, alienation and potentiality. They combine these two dimensions to form a matrix in terms of which the different approaches to research in the Social Sciences may be classified.

The research approach adopted in this thesis is based on Systems Theory and may be classified as *functionalist sociology*, and thus falls into the fourth quadrante of figure 1.3. This implies that the social world is deemed to consist of artefacts and relationships that can be identified, studied and measured. The functionalist approach appears to be the dominant approach adopted in Accounting research (see Puxty, 1993, p.17). Financial reporting in particular is based on a functionalist approach and one of the main objectives is to provide information that is measurable and useful in decision making. The functionalist approach supports the view that the continued existence of Accounting hinges on its usefulness to society. A logical deduction from this statement is that if Accounting and its product, accounting information, cease to be useful and to fulfil its function in society, it will not survive in its present form. In terms of a functionalist perspective, an institution or artefact functions in a certain manner, because that suits the social system. If for any reason

it fails in future to suit the social system, it will have to adapt for survival (Puxty, 1993, p.17).

Based on a functionalist perspective, the finding in this thesis is that Accounting no longer meets the demands of the social system as is witnessed by the extent of criticism levelled at the discipline (see chapter 5). Accounting is confronted by a number of challenges in adapting to the changing needs of society, so that it can retain its utility and relevance. In chapter 8 it is submitted that the introduction of the construct of flexibility in Accounting may to some extent assist the discipline and its information system to adapt to the changing demands of society.

Systems Theory is based on the work of Von Bertalanffy (1972), who identified two main categories of systems, namely closed systems and open systems. He maintained that conventional physics deals mainly with closed systems, that is systems which are considered to be isolated from their environment (Burrell & Morgan, 1979). A controlled experiment in the laboratory, in which the subject being studied is taken out of its environment, is an example of a closed system. A characteristic of a closed system is that it always moves towards a state of equilibrium.

Open systems are quite different in that they are characterised by an exchange with their environment (Burrell & Morgan, 1979). Examples of open systems are living organisms, including human beings and organisations, which are maintained through a continual two-way process of exchange between itself and its environment. That a system is open means not simply that it engages in interchanges with the environment, but that interchange is an *essential factor* underlying the system's viability, its reproductive ability or continuity and its ability to change (Buckley, 1967). An open system may achieve a steady state called homeostasis, but this is not a necessary condition of an open system in the way in which equilibrium is essential to closed systems.

In this thesis both the accounting information system and the business organisation in which the accounting information system operates, are viewed as open systems

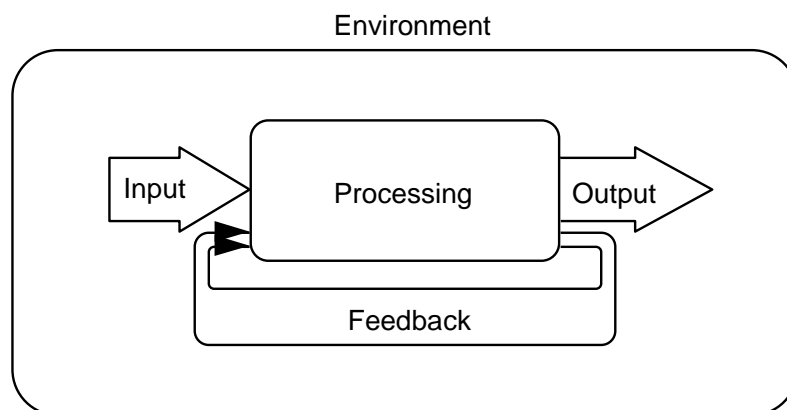
that are characterised by a constant exchange with the environment. It is through such interaction and relationships that open systems can be studied and understood.

An open system can be viewed as a physical or conceptual entity which (Koornhof, 1992, p.38)

- has identifiable boundaries;
- is composed of independent and interacting parts or subsystems;
- functions in harmony with other systems directed towards achieving the goals of the whole, namely survival or homeostasis;
- exists in a continually changing environment with which it interacts dynamically; and
- is normally part of a higher-level system or suprasystem.

The elements of a simple open system can be conceptualised in terms of a simple model which focuses on input, processing, output and feedback, as illustrated in figure 1.4.

Figure 1.4 : Model of an open system



Source: Own observation

In times of rapid change and turbulence, the relationship between the open system, such as a business organisation, and its environment is likely to be affected in the following manner:

- The achievement of homeostasis or survival becomes increasingly elusive;

- The boundary separating the system and the environment becomes increasingly thin and permeable (Peters, 1991);
- The organisation attempts to expose more of its subsystems directly to the environment, so as to “expand” its boundary with the environment and make itself more sensitive to changes in the environment;
- The two-way traffic between the system and its environment increases substantially;
- The subsystems within the system constantly changes, renews, disappears and grows to meet the needs of the system;
- Feedback becomes increasingly important in the process of constant and rapid repositioning;
- The system creates controlled instability within itself (Stacey, 1992a) in a bid to create or anticipate changes in the environment and foster more creativity and innovation from within;
- The interdependence and interaction between subsystems becomes increasingly complex to monitor as the subsystems mutate, merge or disappear; and
- Anticipating the timing and effect of boundary transactions, both internally between subsystems and externally with the environment, becomes increasingly difficult and unpredictable as turbulence increases (Stacey, 1992a).

Systems Theory is a useful tool for studying the response of a system in turbulent times. Its holistic approach and patterned thinking help to create order in complex relationships and to distinguish how the change in patterns over time. However, Systems Theory is only one of the suitable research methods that may be used to deal with the complexity of modern times. It is furthermore not without limitations. It does not necessarily distinguish between types of change. Consider that certain changes may be forced on the organisation, such as legislation, while others are chosen, in the sense that they are recognised and selected by the people in the organisation. This screening process by which certain changes are selected and others ignored, result in organisations which may not respond so much to their environments as “enact” them, that is, create them by selectively choosing to define

certain aspects as important (Kanter, 1982). Weick (1979) questions what an organisation who tries to “see” its environment might do to create the very display it sees, and how the environment could change when it “knows” that it is being watched. These complex issues are not necessarily addressed in Systems Theory.

If the accounting information system is viewed as an open system, it implies that it interacts freely with the environment; the organisation and society and that during turbulent periods, this interaction should increase substantially. The environment imposes conditions and limitations on the system and a radical change in environmental circumstances will influence the system directly. The open accounting information system will therefore have to be *adaptive*, as it will need to respond to changes in its environment in order to survive. If the system does not respond timeously, the environment may either force it to change or no longer support it, in which case it becomes extinct. Alternatively, it may react as a dissipative structure by regenerating to higher levels of self-organisation (Prigogine & Stengers, 1984).

A further aspect of an open accounting information system relates to its instrument for controlling performance, namely feedback. Feedback is a form of input that enables a system to evaluate its internal performance, thus creating the means for the recognition of and adaptation to environmental change. Feedback on internal performance is concerned with system efficiency while feedback on environmental issues is concerned with system effectiveness (Nolan & Wetherbe, 1980). An open accounting system will be productive when it acts purposefully with its environment in the selection of input data and transforms these into output information which is useful to society, and in this way ensures its continued existence and relevance.

In conducting this research, an *interdisciplinary* approach is adopted. A literature survey was conducted which spanned several disciplines, including Accounting, Business Management, Strategic Management, Organisational Theory, the Theory of Change, Systems Theory, Management Information Systems, Investment Theory and Finance. An interdisciplinary research approach complements Systems Theory, as Systems Theory adopts a holistic view of science. It thus recognises that only by viewing the accounting system as a whole, in relation to its environment and including areas addressed by related disciplines, can it be comprehended. Mitroff *et*

al. (1974) point out that there are certain aspects of science which can only be studied from a whole systems perspective and anything less than a holistic view result in failure to identify some of its most essential characteristics. To understand Accounting and accounting information in terms of a systems approach, one needs to view it first in its total organisational context (Puxty, 1993, p.32), and then in a business and societal context. This implies that information gained through a literature survey should not be confined to Accounting but should be extended to include information on the organisational system or suprasystem, and on the broader business and societal environment in which the organisational system operates.

System Theory provided a simple means of categorising, understanding, synthesising and structuring the knowledge gained from specialised and complex disciplines and which resulted from the *interdisciplinary* approach that was followed. Boulding (1956) described Systems Theory as the skeleton of science which provides a framework or structure on which to hang the flesh and blood of particular disciplines and particular subject matters so as to create an orderly and coherent corpus of knowledge. Systems Theory is a vehicle for providing structure in this thesis. The thesis therefore commences with the general environment of society and more specifically the business environment (chap. 3), progresses to the next level of open system, the organisation (chap. 4) and then to the open subsystem, Accounting and the accounting information system (chap. 5). The interdisciplinary literature survey is used to identify first the changes in the environment, secondly the interactions between the environment and the organisation, and finally the interactions between the environment, the organisation and the accounting information system. The literature survey served to identify the nature and role of flexibility in organisations and also to provide input into the measurement and communication of information on flexibility.

In the research a *non-formal* rather than a formal approach was used to introduce the construct of flexibility. Churchman (1961) defines the formal approach as one which values well-specified hypotheses which are laid down prior to the initiation of the inquiry, remain fixed throughout the course of the inquiry and are tested according to specified, fixed rules. In contrast, the non-formal approach emphasises the discovery of new hypotheses. As such, it is suitable when the aim of inquiry is to

discover new ideas and not to test preconceived ones. A similar non-formal approach was used by Simon (1955) when he introduced the new constructs of “bounded rationality” and “satisficing” into Economics.

Because the idea of flexibility, as proposed in this study, is a new construct in Accounting, the research conducted is of an *exploratory* nature. Therefore a largely *normative* approach is followed throughout the text. The logic used in the research is mainly *deductive* with logical deductions and conclusions being supported by main and secondary assumptions and propositions.

Flexibility is a complex and multidimensional concept. Consequently extensive use is made in the text of *diagrams*. The use of diagrams is warranted as it makes the construct of flexibility visible, more understandable and concrete. The diagrams are used to explain relationships, indicate the borders of the study field, to show direction, identify procedures and highlight the complex nature of the central construct. *Examples* are further used to explain the nature of the different types and levels of flexibility in organisations and to serve as guidelines to management and accountants in recognising, measuring and communicating flexibility measures.

Chapter 2 Accounting and accounting information

Accounting: “the fairest invention of the human mind.”
(Goethe)

2.1 Introduction

As intimated by its title, this thesis proposes the inclusion of information on flexibility as a means of enhancing the accounting information systems of business organisations. However, the inclusion of such information would be incomplete without a prior discussion of the purpose of Accounting and its product, accounting information. In this chapter the nature and role of Accounting is considered and the classification of information as management accounting information and financial accounting information is discussed. The purpose of providing accounting information, as well as the qualitative characteristics of decision-useful information, is addressed. In the conclusion the users of accounting information are identified and their needs summarised.

2.2 The nature of Accounting

Before the nature of Accounting can be addressed, the field of study must first be delineated. This entails an identification of the area of interest and of the borders of the discipline in relation to neighbouring disciplines. Thus a successful definition of Accounting should clearly delineate the boundaries of the discipline at a point in time, give a precise statement of its essential nature, and be flexible so that innovation and growth in the discipline can be accommodated.

A number of definitions of Accounting have appeared in the literature, each attempting to demarcate its field of study. Developing a single definition of Accounting is however beset with difficulties. The first difficulty stems from the *dynamic* nature of Accounting. Glautier and Underdown (1986, p.3) point out that the

changing environment continually extends the boundaries of Accounting, which makes defining the scope of the subject problematical.

A second difficulty, which stems from the first, is the question of *boundaries*. Accounting can be described as being simultaneously eclectic and pervasive, consequently definitions of Accounting tend to have fuzzy and changing boundaries.

A third difficulty stems from the often debated question of whether Accounting is an *art or science*. According to the AICPA (1953) Accounting is an art. The Committee on Terminology of the AICPA (1953, par.5) defined Accounting as follows:

“Accounting is the art of recording, classifying and summarising in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character and interpreting the results thereof.”

While Accounting may have started out as being an art, it is doubtful whether this view is still generally held. The increased use of scientific methods in Accounting has changed the discipline to an applied science. Mattessich (1984) for example states that Accounting is an applied science – a science because of its methodology and applied because of its goal orientation. He also suggests that it may be regarded as an induced science as it tends to solve specific problems from which general propositions are induced. Steele (1991) and Belkaoui (1996) have supported this view. They identify Accounting as a multi-paradigmatic social science based on models of human intention and rationality. Accounting can obviously no longer be regarded simply as an “art”.

More recently the AAA (1966, p.1) has attempted to give a broader perspective of Accounting in the following definition:

“[Accounting is] the process of identifying, measuring and communicating economic information to permit informed judgements and decisions by users of the information.”

However, the definition is too general. For instance, economists provide “economic information”, but they certainly do not consider themselves to be accountants (Kam, 1990, p.33).

In 1970 (par. 40) the APB of the AICPA defined Accounting as follows:

“Accounting is a service activity. Its function is to provide quantitative information, primarily financial in nature about economic entities that is intended to be useful in making economic decisions, in making reasoned choices among alternative courses of action.”

Although this definition is broad enough to encompass the domain of Accounting, the boundaries remain vague. Another serious limitation is that it limits Accounting to providing quantitative information, while the modern trend is to provide qualitative information as well.

Professional accounting bodies provided the above definitions.

An example of definitions in accounting textbooks is supplied by Kieso and Weygaardt (1992, p.3) who identify the three essential aspects of Accounting as

- the identification, measurement and communication of financial information
- on economic entities
- to interested parties, being the users of financial information.

This definition does not take into consideration the use of such information to users, and limits the information to financial data. A more comprehensive definition of Accounting is provided by Ansari, Bell, Klammer & Lawrence (1997, p.2) who state that it consists of four key ideas:

- It is by *nature* a measurement process;
- Its *scope* includes financial and operational information;
- Its *purpose* is to assist the organisation in reaching its strategic objectives;
- and

- Its *attributes* are to enhance the understanding of the measured phenomena, and provide information for decision making, and therefore encourages actions and supports and creates shared values, beliefs and mind sets.

This definition has a number of strengths. It identifies that accounting information should include both financial and operational information. It stresses the increasing importance of supporting strategic decision making in the organisation as a result of a volatile and competitive business environment. It views Accounting as more than the technique of processing and measuring data. Behavioural and social responsibility aspects are recognised in the definition as attributes. This view is, however, restricted as it defines Accounting from a Management Accounting perspective and overlooks the financial reporting aspects. Another limitation is that it does not state specifically that in Accounting change and continuous improvement are measured, although it is implied. By facilitating change, the implication is that accounting information should include aspects such as flexibility and companies' ability to adapt to change.

The construct of flexibility does not appear in any of the definitions on Accounting, because the definitions were developed during stable periods. The environment however has changed – uncertainty has increased and predictability has declined. In view of the fact that flexibility is a function of uncertainty, greater value will be attached to flexibility in organisations as uncertainty escalates. It is therefore appropriate to include the construct of flexibility in the definition especially during periods of uncertainty.

Although the term flexibility has appeared in the accounting literature if not in the definitions on Accounting, it is often referred to in a negative context. Flexibility in Accounting is viewed by some authors in a negative light. Wolk, Francis & Tearney (1984, p.242) for example, define flexibility as the choice between different accounting policies. The aim of Accounting is to reduce the number of acceptable accounting policies so that a transaction is treated consistently by different reporting entities. This implies in turn, that “flexibility” should be eliminated, too. This endless pursuit of consistency and to a lesser extent comparability, contributes to the

inflexibility of Accounting and to the negative perceptions of flexibility in the accounting community.

What is of particular interest is the evolution of definitions of Accounting over time. In 1953 the AICPA definition emphasised the technique of recording, classifying and summarising information while in 1997 the Ansari definition summarised the technique aspect as a measurement process and focused on the social and behavioural impact of Accounting. It is to be expected that the definitions of a dynamic discipline will evolve over time.

Definitions of Accounting are also influenced by the different images that researchers have of what the accounting process is or should be. Belkaoui (1992, p.51) submits that there are six different images of Accounting:

- As an *ideology* – it is viewed as a means of sustaining and legitimising the current social, economic and political arrangements;
- As a *language* – it is perceived as the language of business which is used to communicate information on enterprises;
- As a *historical record* – it is viewed as a means of recording the history of an organisation and its transactions with the environment;
- As *current economic reality* – it is viewed as the means of determining the true income of an entity namely the change of wealth over time;
- As an *information system* – it is viewed as a process that links an information source (the accountant) to a set of receivers (external users) by means of a channel of communication;
- As a *commodity* – specialised information is viewed as a product which is in demand in society, with accountants being willing to and capable of producing it.

A distinct classification of the different images of Accounting is somewhat misleading, because these images of the nature of Accounting are often intertwined in practice. In the *Conceptual framework on financial reporting* (SAICA, 1990), for example, images of Accounting as an information system are found in paragraph 25,

as a language in paragraph 39 and as a historical record in paragraph 16. These images, too, are flexible in that elements thereof can be combined to identify the nature of Accounting.

In each of these images of Accounting the construct of flexibility can be accommodated. This holds regardless of the image of Accounting that is used by a researcher as a point of departure in developing a definition of Accounting. For example, if Accounting is viewed as an ideology, flexibility could be used as a tool to protect the social, economic and political arrangement, by ensuring the continued existence of current organisations. If Accounting is viewed as a language, the inclusion of information on flexibility would enhance the usefulness of the language to the different stakeholders. A language cannot become static but will constantly evolve through the introduction of new terms such as flexibility. Even if Accounting is viewed as a historical record of company transactions, information on flexibility levels would serve as a basis, firstly for understanding the organisation's position in relation to its competitors and secondly for predicting its future competitive positions.

From a functionalist perspective, Accounting is viewed not as an end in itself, but rather as a commodity or language that is useful in decision making. This implies as mentioned before, that the continued existence of Accounting is dependent on its usefulness to society, and in a narrower context, its usefulness to the users of accounting information (see Puxty, 1993). Several of the above definitions are in line with a functionalist approach in that they emphasise the need to provide information useful in the decision-making process of users. These users of financial information can be divided into two main categories, namely internal and external users. Internal users of information include management and employees who require information for strategic, operational and administrative decisions. This type of information is communicated in internal and management reports and is the domain of Management Accounting. External users include investors, lenders, suppliers, customers, government and the public who require information for various purposes. Information to external users is communicated by means of the annual and special purpose financial reports and is the domain of Financial Accounting.

This somewhat artificial division of the discipline of Accounting is addressed in the next section.

2.3 Financial Accounting and Management Accounting

The apparently divergent needs of internal and external users of accounting information have resulted in the development of two subdisciplines within the discipline, namely Management Accounting and Financial Accounting. Drury (1996, p.4) states that Management Accounting is concerned with the provision of information to people *within the organisation* to help them make better decisions, whereas Financial Accounting is concerned with the provision of information to *stakeholders outside the organisation*.

The relationship of the internal and the external users to the information produced in an economic entity differ essentially in the following six areas:

- Access,
- Frequency,
- Detail,
- Timing,
- Required expertise and understanding, and
- Response.

The internal users have unlimited and direct access to information in the organisation. Information is available to management on demand to support strategic, tactical and operational decisions. In contrast, the external users of financial information have limited and indirect access to information and is usually reliant on the information contained in the financial reports and reported in the press.

The *frequency* with which accounting information is obtained varies between internal and external users. Management can request information on a regular basis, be it monthly, weekly or daily. External users have to rely on the annual and interim

financial reports and other sources of information such as press releases, which are available on a less frequent basis.

Management and employees have access to the level of *detail* of information they require, whereas external users receive aggregated information contained in financial statements and have virtually no access to detailed information which is not prescribed by legislation or accounting standards.

Internal users can access information directly and are supplied on a *timely* basis with the most up to date information. In contrast, external users are supplied with dated and historical information supplied in interim reports and annual financial reports, often with limited information value. Because it is obtained timeously, the information provided to internal users has more predictive value than that which external users receive.

The required *expertise* and *understanding* of internal and external users of information usually differ. Internal users are involved in the day to day running of the business and therefore have a greater understanding of the business and the industry in which the business operates and thus of necessity greater expertise than external users in interpreting trends and results.

The *responses* of internal and external users to accounting information are different. Internal users use the information to run the organisation or make strategic, operational or administrative decisions. External users use the information for a broad spectrum of responses such as whether to invest, supply materials or advance funding. Their values, culture and beliefs influence the response of users.

It is therefore not surprising that Management Accounting and Financial Accounting developed in different directions. The aim of the former is to meet the dynamic information needs of management and employees of organisations in rapidly changing and competitive business environment. The latter, on the other hand, concentrate on identifying the needs of a diverse group of users, protecting their interests through legislation and accounting statements, and extending and improving the quality of minimum disclosure requirements in financial reports.

The divergent development of Management Accounting and Financial Accounting has resulted in, effectively, two information systems within organisations. Johnson and Kaplan (1991) suggest that Management Accounting has developed faster in recent times than Financial Accounting. They argue that in the past, Financial Accounting was the foremost factor that inhibited development in Management Accounting. Once the legislative and standardised approach ascribed to in Financial Accounting was abandoned, Management Accounting became more flexible and management and accountants more willing to experiment in meeting the demands of management. As a result management has come to view financial statements as a costly but necessary exercise in order to comply with legislation and GAAP. The information contained in the financial statements is rarely useful to management and often far removed from the information needed to run the business.

The external users receive information in the financial reports which is not necessarily relevant for assessing the particular business and the performance of management. Thus it is not surprising that recommendations of the Jenkins Report (AICPA, 1994a, p.5) included the following on external business reporting:

- External business reporting must provide more information with *forward-looking* perspective, including with regard to management's plans;
- It should focus more on the factors that create long-term value and on *non-financial* measures which indicate how sectors of the business are performing; and
- It must provide greater *alignment between the information* reported externally and the information reported to senior management.

The Institute of Chartered Accountants of Scotland (1988) confirmed that the information needed by investors is the same in kind if not in volume, as that needed by management. This implies that the informational needs of external users are not as far removed from the informational needs of internal users as the diverging development implies. Obviously, if informational needs of users overlap in many respects, it is unnecessary to maintain two information systems. What is in actual

fact required, is one flexible accounting information system that meets the needs of diverse users. The use of technology may improve the position of all users by facilitating access to and improving the frequency and timeliness with which information is received. With technology it would also be possible to predetermine access levels for user groups.

The independent development of Financial Accounting and Management Accounting has widened the gap between information needed by management and the information reported to other users and is inefficient and costly in a competitive environment. As has already been mentioned, the effective use of technology can be used to develop one flexible information system in an enterprise that meets the different needs of both internal and external users. The Institute of Chartered Accountants of Scotland (1988) made proposals on how one accounting information system, by means of a set of corporate reports coupled with computer technology, could satisfy the needs of both internal and external users of information.

For the purpose of this thesis, the assumption is made that there is only one accounting information system and only one discipline, namely Accounting, which encompasses the fields of study of Financial Accounting as well as Management Accounting.

2.4 The purpose of accounting information

The product of Accounting is accounting information. Accounting information is used in deciding between different courses of action and results in informed decision making. It serves to reduce the uncertainty inherent in the business environment where decisions are made about the future. It further reduces entropy based on the assumption that chaos exists where there is no information. Littlejohn (1989, p.42) views information as a measure of uncertainty or entropy in a situation. This implies that the greater the uncertainty or entropy, the more accounting and other information are required.

The role of the accountant in producing accounting information is to observe, screen and recognise events and transactions, to measure and process them and to compile corporate reports with accounting information that are communicated to users. These are then interpreted, decoded and used by management and other user groups. The main requirement for such corporate reports is that they should be useful to users. The provision of information that is useful to the decision-making process is currently recognised as the main purpose of accounting information. This holds for theoretical frameworks on financial reporting as well as accounting literature. Gray (1994, p.9) confirms that accounting literature is currently dominated by the notion of decision usefulness. This implies that corporate reporting should continuously meet the changing needs of all users of accounting information.

The robustness and meaning of “decision usefulness” as the main objective of accounting information has, however, been criticised in the literature (Williams, 1987; Pallot, 1991). Gray (1994) calls decision usefulness a flaccid term without any element of degree. Although accounting information may be used, it does not necessarily imply that it is decision useful. In fact, very little concern seems to be given to defining what exactly decision usefulness is supposed to connote (Williams, 1987, p.179).

A number of international reports have been published since the early 1970s to determine, amongst others, the purpose of accounting information and the content of financial statements. These reports focused on the needs of external users, and identified decision usefulness as the main aim of accounting information.

In the Trueblood Report (AICPA, 1971), one of the definitive reports on corporate reporting which was published in the United States of America, 12 objectives of financial statements were identified including the following:

- To provide information for making economic decisions;
- To serve users who rely on financial statements as their principal source of information;

- To provide information useful for predicting and evaluating the amount, timing and uncertainty of potential cash flows;
- To supply information for judging management's ability to utilise resources effectively in meeting goals;
- To provide factual and interpretative information by disclosing underlying assumptions on matters subject to interpretation, evaluation, prediction or estimation; and
- To provide information on activities affecting society.

Although not mentioned explicitly, the construct of flexibility is implied in several of these objectives. For example, the third objective refers to the amount, timing and uncertainty of cash flows. Information on flexibility is useful in predicting the amount and timing of future cash flows and removes some of the uncertainty in that it provides information on the alternatives that management are likely to select (Koornhof, 1988). Similarly, information on flexibility is helpful in achieving the fifth stated objective, namely of providing information on matters which are subject to interpretation, evaluation, prediction or estimation. Information on flexibility assists users in identifying likely outcomes for the enterprise and therefore add interpretative, predictive and estimative value.

Although the 12 objectives of the Trueblood Report were intended to be equally important there is a justifiable tendency to arrange them in a definitial hierarchical structure (Belkaoui, 1992). Consequently, the first stated objective of the Trueblood Report, namely the provision of information for economic decision making, is interpreted by some as being the primary purpose of financial statements.

The findings of the Corporate Report that was published in the United Kingdom in 1975, confirmed that financial reports should seek to satisfy the information needs of users. It envisaged a more socially responsible role for Accounting: It namely advocated additional information in the form of, for example statements of value added, an employee report and a statement of money exchanges with government. In terms of this socially responsible perspective, accountability is regarded as existing not only between the management of the company and its shareholders, but

also between the management, the company and society. Accounting should therefore provide information on management's stewardship of resources to the shareholders and the other stakeholders such as creditors, employees, the government and the general public.

In Canada, the Stamp Report (CICA, 1980) on corporate reporting identified four major objectives of financial reporting:

- To provide useful information to all the potential users of such information in a form and time frame that is relevant to their needs;
- To provide information to minimise uncertainty about the validity of information and to enable the user to make his or her own assessment of risks associated with the enterprise;
- To develop standards governing financial reporting which allow ample scope for innovation and evolution as improvements become feasible; and
- To be directed towards the needs of users who are capable of comprehending a complete set of financial statements.

The construct of flexibility may also contribute towards the attainment of the objectives stated in the Stamp Report. Information on flexibility reduces uncertainty and also the risks associated with enterprises, as set out in the second stated objective (Koornhof, 1988). The introduction of flexibility into Accounting should result in a less rigid approach being adopted in the development of accounting standards, which is the third stated objective.

Whereas all these reports concentrated on the objectives of financial reporting to external users, the Institute of Chartered Accountants of Scotland (1988) considered the information needs of both management and external users. The conclusions made in the report are that an efficient market requires the communication of useful information from management to investors, that financial reports should reflect economic reality and that the information needed by investors is the same in kind as that needed by management. The finding is that one accounting system can serve the needs of both external and internal users but warns that the "patching up" of the

present reporting regime would not be the ideal solution. An entirely new corporate reporting system that is useful to both management and, in an abbreviated form, to external users, is required. This report confirms that there should be only one accounting information system that is flexible enough to meet the needs of different types of users.

In 1989 the Solomons Report, commissioned by the ICAEW (1989) reiterated that decision usefulness is the main purpose of financial reporting. Financial reports should provide information that will be useful to a variety of users who have an interest in

- assessing financial performance and the position of the enterprise;
- assessing the performance of these responsible for its management; and
- making decisions about investing in, lending or extending credit to, doing business with or being employed by the enterprise.

The theme of decision usefulness as the main purpose of accounting information is also apparent in Management Accounting. Drury (1996, p.3) suggests that management requires information that will assist them in their decision-making and control activities and Ansari *et al.* (1997, p.2) identify as an attribute of Accounting the provision of information for decision making.

Decision usefulness as the main objective of Accounting information cannot remain static, however, but will evolve and change over time. It will be influenced by political, social, economic and technological changes in the environment. Changes in the environment may influence not only the nature and objectives of accounting information, but also the needs of its users. This requires the accounting information system to be flexible so that it can adapt to the changing demands of its users. According to the Stamp Report (CICA, 1980) the standards governing financial reporting should furthermore also be flexible. A flexible information system and flexible reporting standards will not inhibit innovation, experimentation and evolution in adapting to the changing demands of users, but rather promote it.

Decision usefulness is favoured in accounting reports and theoretical frameworks on financial reporting, however it is not the only purpose of the Accounting discipline. At present there is no comprehensive theory of Accounting, and therefore no generally agreed on purposes for Accounting. The discipline is viewed rather as a multiple paradigm science. Belkaoui (1996, p.24) suggests that Accounting consists of six competing paradigms. Other authors argue that Accounting is in fact in a revolutionary phase as described by Kuhn (1970) in *The structure of scientific revolutions* (see Wells, 1976; Steele, 1991) and that no dominant paradigm of Accounting has as yet emerged.

In October 1998, on publication of the thesis, SAICA issued AC 101 on the presentation of financial statements. In the statement (paragraph 9) enterprises are encouraged to provide the following additional decision-useful information in their financial review:

- The main factors and influences determining performance, including changes in the environment in which the enterprise operates, the enterprise's response to those changes and their effect;
- The enterprise's sources of funding, the policy on gearing and its risk management policies; and
- The strengths and resources of the enterprise not reflected in the balance sheet.

These disclosure requirements are related to the positioning of the enterprise and its ability to adapt to changes in the environment. In other words, it concerns the flexibility of the enterprise. This statement recognises the importance of providing information on flexibility to users and as such underlines the farsightedness of this research.

2.5 Characteristics of decision-useful information

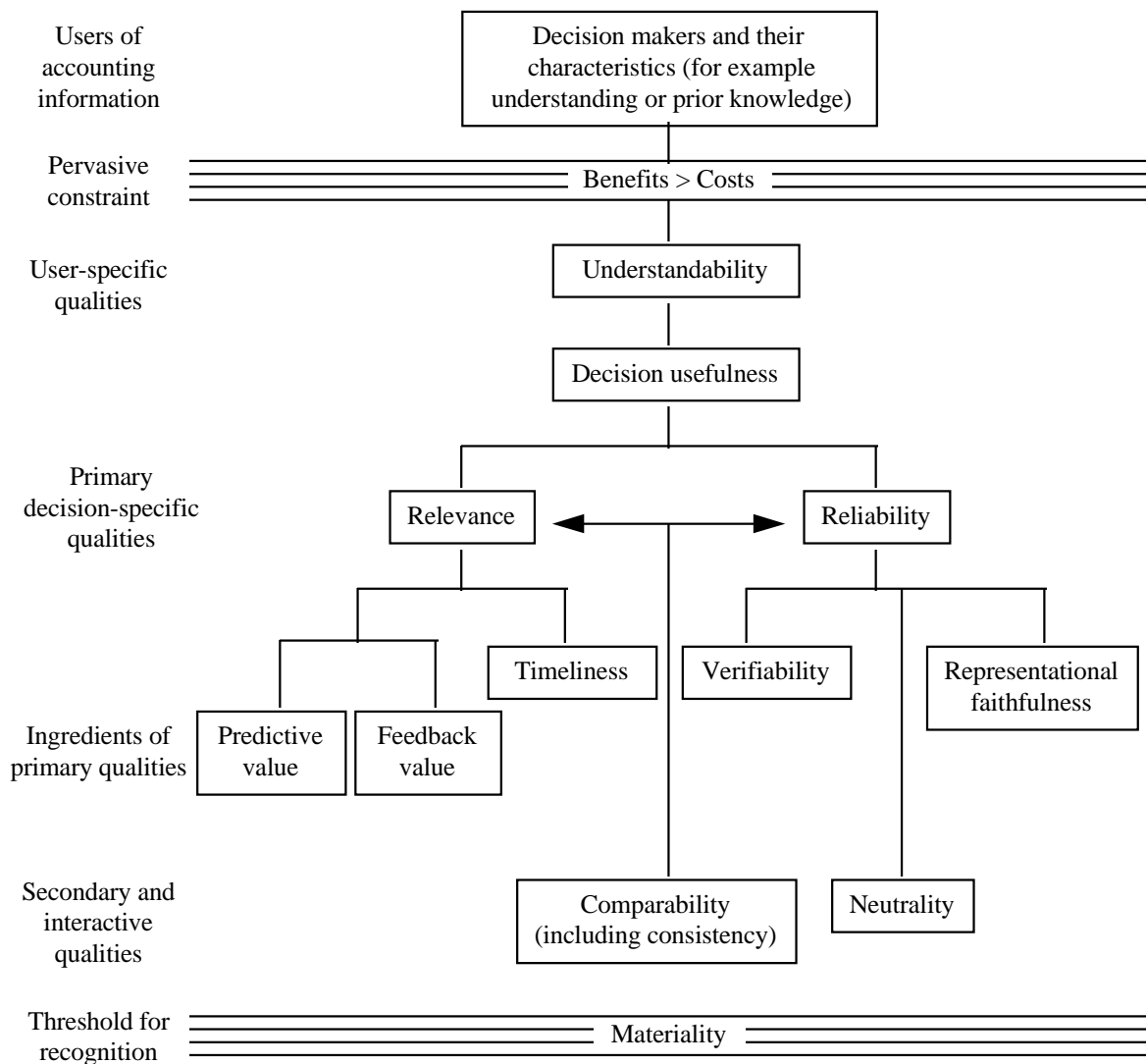
The purpose of this research is to introduce information on flexibility into the accounting information system, which meets the objective of being useful in decision making. In order to assess whether accounting information is decision useful, a number of qualitative characteristics are identified from the accounting literature.

Hendriksen and Van Breda (1992, p.123) defines qualitative characteristics as attributes of accounting information which tend to enhance its usefulness. These qualitative characteristics should be

- robust i.e. stand the test of time;
- pervasive, i.e. apply to all accounting entities;
- implementable, i.e. capable of application; and
- susceptible to objective verification.

In their conceptual framework, the FASB (1980a) distinguished between two categories of qualities, namely user-specific and decision-specific qualities. User-specific qualities refer to aspects such as an understandability and decision-useful qualities and on the ability of users, for example their knowledge of Accounting and willingness to study information. These qualities of users determine the level of complexity of information that should be reported. Decision-specific qualities concern the qualities required of information such as timeliness, relevance and completeness. The hierarchy of Accounting qualities proposed by the FASB is illustrated in figure 2.1.

Figure 2.1 : A hierarchy of accounting qualities



Source: Hendriksen, E. S. & Van Breda, M. F. (1992), *Accounting theory*, 5th ed., Homewood, Ill.: Irwin, p.132.

The characteristics proposed by the FASB correspond to a large extent to the qualities proposed in the Trueblood Report (1971), the Corporate Report (1975) and the Solomons Report (1989).

The two prime decision-specific qualities are relevance and reliability. Relevance refers to the capacity of information to influence the decision-making process of users. It enables users to make predictions about the future (predictive value of information) and to confirm or revise previous estimates (feedback value of information). In order for information to be relevant, it should be made available to

the user before it loses its capacity to influence decisions. In other words, it should be provided on a timely basis.

The predictive value and feedback value often receive less prominence than other qualities in the conceptual framework (see for example SAICA, 1990). However, predictive and feedback values form the basis for information on flexibility. Predictive value provides decision-useful information on how the enterprise is likely to respond to future change and uncertainty, while feedback allows the enterprise and the user to reposition themselves (feedback value) in response to such changes. In the light of research and AC 101 (SAICA, 1998) it is likely that the framework will be reassessed. AC 101 recommends the disclosure of information on what is effectively flexibility.

The second primary decision-specific quality is reliability. This assures that information is reasonably free from error and bias, is verifiable and faithfully represents what it purports to represent (FASB, 1980a). In order to be a faithful representation, information should maintain an agreement between the measure and description and the actual phenomenon which it purports to represent. In order to be verifiable it should be possible to substantiate and confirm the information independently. Neutrality implies on the one hand that the preparer of information is not biased towards a predetermined result and on the other that the information is not reported in a such manner that it may unduly influence the decisions of users in a particular direction.

Both the primary qualities of relevance and reliability are associated with the secondary quality of comparability. This quality of information requires that transactions and events be measured and reported in a consistent manner to enable users to compare the results of a company from year to year or with the results of different companies.

Acting as a pervasive constraint to the provision of information, is the cost versus benefit assessment. This constraint implies that the cost of providing information should not be exceeded by benefits derived by the users. Although costs can usually be quantified, the measurement of the benefits of information is on the whole more

problematic. To assess this constraint, continuous feedback is required on the effectiveness and efficiency of a system. This assumes that the accounting information systems are viewed as an open system.

Materiality forms the threshold for the recognition of information. Only material information is included in the financial statements. Materiality is however not only limited to size but also the nature of the underlying transaction or event and the impact that such information may have on the decisions of users.

A strength of the FASB hierarchy is that it adapts a customer-oriented approach. The hierarchy commences with the users of accounting information and their specific qualities, suggesting that this should form the basis for determining the decision-specific qualities. The hierarchy does not, however, emphasise the continuous feedback and repositioning required between the preparers of information on the basis of decision-useful qualities and the users with their user-specific qualities. The needs and qualities of users do not remain static but evolve over time. Therefore, the decision-useful qualities should change over time, through feedback, in response to the evolving expectations of users. Gouws (1997) suggests that feedback on the effectiveness of communication through financial statements should be encouraged as this will improve the quality of information and its decision usefulness.

Other qualities of decision-useful information are proposed in the accounting literature. The Solomons Report (1989) refers to feasibility that is the need to require only information that is feasible to provide. However, the concept of feasibility is only meaningful if considered together with the cost versus benefit constraint. The Corporate Report (1975) suggests that completeness is another quality of decision-useful information, in other words reported information should provide a full picture of the economic activities of the organisation. Substance over form is identified in the Trueblood Report (1971) as the requirement that information should be based on the economic substance of the transaction or event rather than on the legal form. Two qualities that are suggested in the SAICA framework (1990) are prudence and fair presentation. Prudence is the inclusion of a degree of caution in the exercise of judgements needed in making estimates under conditions of uncertainty, while fair presentation should be basic to all financial statements. Although this quality is not

defined in the framework, it is mentioned that the application of the principal qualitative characteristics and appropriate accounting standards would result in financial statements which fairly presents the information.

These qualities of decision useful information are not absolutes. In practice it may be necessary to weigh up the importance of conflicting qualities as the gain in one quality, such as relevance, may result in the decline in another, such as reliability. This highlights a problem inherent to the use of qualitative measures, namely that the measures may not be applied consistently – different weights may be attributed to qualities by different people and the relative importance of different qualities may change over time. Unfortunately the balancing of conflicting qualities of information and the interpretation of the importance of individual qualities are not usually apparent from financial reports. Nevertheless, these qualities are very useful in assessing what constitutes decision useful information.

2.6 The needs of users

Before the needs of users can be considered, it is necessary to identify the users of business information, as different users utilise business information to satisfy different needs. There are two main user groups:

Internal users

- Management – decisions concerning the running of the business and strategic planning for the future.
- Employees – decisions on personal matters, e.g. promotion, appointments, security and training.

External users

- Investors and potential investors – information on the risks and returns on investments.
- Unions and employee groups – information on the stability, profitability and distribution of wealth within the business.
- Lenders and financial institutions – information on the creditworthiness of the company and its ability to repay loans and pay interest.
- Suppliers and creditors – information on whether amounts owed will be repaid when due, and on the continued existence of the business.
- Customers – information on the continued existence of the business and thus the probability of a continued supply of products, parts and after sales service.
- Government and other regulators – information on the allocation of resources and the compliance to regulations.
- Social responsibility groups, such as environmental groups – information on the use of the environment.
- The public – information on the role and contribution of businesses to society.
- Competitors – information on the relative strengths and weaknesses of their competition and for comparative and benchmarking purposes. Whereas the above categories of users share in the wealth of the company, competitors require the information mainly for strategic purposes.

A serious shortcoming of the reports on financial information as well as the conceptual frameworks is that they are largely based on what is perceived to be decision useful information. Until recently the needs of especially external users had not been surveyed on a large scale (AICPA, 1994a, p.12). Consequently these reports and frameworks were based mainly on the limited available research, input from particular users groups and current perceptions as to what decision-useful information entails.

In 1994 AICPA appointed a special committee on financial reporting to complete an extensive survey of the information needs of investors and creditors in the United States of America (the Jenkins Report). The study focused on professional investors and creditors and their advisors who follow fundamental approaches to decision

making and who cannot compel companies to produce the information needed for analysis.

The survey (AICPA, 1994a, p.25) identified five broad categories of business information which are required by users:

- Financial and non-financial data;
- Management's analysis of financial and non-financial data;
- Forward-looking information;
- Information about management and shareholders;
- Background to the company.

The Jenkins Report confirmed the importance of financial statements in providing information which influences users' decision making. The financial information provides a means of evaluating and comparing the results and position of businesses by measuring transactions or events in financial terms. This does not obviate the need of users for more information on operations, as users would prefer not to rely only on financial results. They also require operating data in order to understand the nature of the business and its performance relative to competitors. Operating data may be stated in terms of currency, products or time units, number of employees and so forth or may be stated qualitatively in the form of descriptions and opinions.

The report noted that users found that management's analysis enhanced their understanding of the business reasons for changes in the information from year to year. Management is the closest to the business and therefore the best qualified to provide such information for analytical purposes. The management review includes a discussion of the changes in financial, operating and performance data as well as key trends. Users require information about changes relating to market acceptance, productivity, costs of key resources, profitability, innovation, changes in financial position, liquidity and the identity and effect of unusual or non-recurring transactions and events (AICPA, 1994a, p.28).

Users also require the perspectives of management on the future, in particular on the opportunities and risks that arise from changes in the environment of the organisation. Information on flexibility assists users in identifying the most probable future opportunities and risks confronting the enterprise, and the most likely responses of the enterprise. Forward-looking information should include information on the threat of substitute products, the nature of competition, changes in the bargaining power of customers and suppliers, concentrations in company's assets, customers or suppliers and future sources of available funding. It should also include information on flexibility, being the ability of the organisation to adapt to the changing demands of its environment. Users require more information on management's plans for the future. These plans will be influenced by management's perspective on the volatility of the future environment and the corresponding level of flexibility that should be maintained in the enterprise. Such knowledge will assist users in their predictions and assessment of the general direction or changes in the direction of the company and is an important source of information on the opportunities and risks the company will probably face in the future (AICPA, 1994a, p.30).

In particular the following information about the management and shareholders of companies is useful:

- The identity and background of directors and executive management;
- Executive management compensation, and shares held by management;
- The identity and ownership of major shareholders and the impact of existing arrangements on control;
- Related party transactions and relationships among major shareholders, directors, management suppliers, customers, competitors and the company.

Such information assists users to assess the ability of management to steer the company successfully through uncertain times and their stewardship of resources, as well as the equitable distribution of created wealth.

The study found that users require background information about the business in order to understand how the company operates and what the nature of its business

is. Information is required on the broad objectives and strategy of the company, the scope and description of business and property and the impact of industry structure on a company such as innovation, introduction of new products and product life cycles (AICPA, 1994a, p.31). This information provides a basis for predicting the future performance of the company as well as assessing its flexibility.

Users do not assess the performance of companies in isolation, but rather seeks to compare these companies with their competitors and the industry as a whole. It is therefore important that reported information should be comparable and consistent. In addition to the five broad categories discussed above, the study identified needs of users for extended and improved disclosure in the following specific areas:

- Business segment information;
- Innovative financial instruments;
- Off balance sheet financing arrangements;
- The separation of core and non-core activities;
- The uncertainty inherent in the measurement of certain assets and liabilities;
and
- Quarterly reporting.

Of particular interest in this Report was the concern of external users that the information provided in the financial reports is not closely aligned to the information used by management to run the organisation. This opinion supports the prior argument that there should be only one accounting information system.

A limitation of the Jenkins Report is that it surveyed the needs of only investors and creditors. More research is required to identify the particular needs of other user groups. The results of the Jenkins Report indicate, however, that the provision of only financial information (usually in financial reports) does not satisfy the requirements of users. Hellman (1996) suggests that there is at present no mechanical relationship between financial information and investment actions. This implies that investment actions cannot be linked to the release of financial reports. It is likely that the inclusion of more operating and non-financial information as well as

future-oriented information (e.g. on the plans of management) would influence investment decisions. These areas thus require greater emphasis and more research in Accounting.

2.7 Summary

In this chapter the nature of Accounting and its product, accounting information was considered. Accounting is used as a generic term to include both Management Accounting and Financial Accounting. The main purpose of accounting information is to provide information that is useful to decision making. In deciding what constitutes decision-useful information, two aspects were considered. Firstly, the qualities inherent to decision-useful information and secondly, the groups of users of accounting information were identified and their particular needs assessed. These needs are not static but rather dynamic, changing constantly in response to a changing environment (IFAC, 1996). This implies that the accounting information system should be flexible so that it can adapt to the changing demands of its users. The system should also be user driven; that is, the needs and expectations of the users of accounting information should dictate the type of information that is produced. The requirement that the accounting information systems should constantly reposition itself in response to changing expectations. This implies that it should be viewed as an open system. In other words, feedback both from within the system and from its environment should drive the constant repositioning of the information system.

The purpose of this thesis is to propose the inclusion of information on flexibility into the accounting information system. By labelling the construct of flexibility it becomes visible, and so that awareness of its benefits can be created. The inclusion of information on flexibility is however only feasible if it provides decision-useful information. Information on flexibility is decision useful if it is understood by users, is included in their decision-making process and influences their responses.

Chapter 3 A changing environment

“There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain of success than to take a lead in the introduction of a new order of things, because the innovation has for enemies all those who have done well under the old conditions and lukewarm defenders in those who may do well under new.”

(Machiavelli in *The Prince*)

3.1 Introduction

In chapter 2 the purpose of accounting information was considered. The purpose is to provide a wide range of users, who form part of the environment of Accounting, with decision-useful information. If the accounting information system is viewed as an open system as stated in chapter 1, it is necessary to consider how its environment is changing and what impact these changes have on the accounting information system. The environment can be divided into the task environment, the business organisation and the general environment, the business world and broader society (Kast & Rosenzweig, 1974). This chapter addresses the changes in the general environment of Accounting, while the next chapter deals with its task environment.

From the literature it is apparent that the business environment of the 1990s has been subject to rapid and accelerated change. This change is creating a more uncertain and complex environment in which businesses are to operate. Management of businesses are finding that old proven methods, beliefs and recipes for success are no longer producing the solutions to today's or even tomorrow's problems because in times of rapid change the patterns of the past are less likely to recur in the exact or even similar format in the future. Johnson (1992, p.198) holds the view that the volatile external environment of the 1990s changes constantly and almost instantaneously and its prodigal changes compel transacting of business in a new way. Times of great change hold out, however, not only threats but also opportunities. Indeed, a time of turbulence may also be one of great opportunity for those who can understand, accept and exploit new realities (Drucker, 1980). Businesses that are flexible and able to adapt to the changing environment will be

able to exploit new opportunities and avert threats more successfully than their competitors.

Chapter 3 commences by considering the nature of change, the accelerating pace of change, the phases in handling change and the resistance of individuals and groups to change. It addresses the nature of changes in the business environment and the interaction between the enterprise and its environment. It concludes with a brief discussion on the survival to businesses in a fast changing environment.

3.2 The nature of change

The term “change” is a rather elusive concept, difficult to describe with accuracy, difficult to pin down. Kanter (1982) notes that organisational theorists have produced much more work, and of greater depth and intellectual sophistication, on the recalcitrance of organisations and their people to change – how and why they resist change – than on the process of change itself. She speculates that it is precisely because “change” is so elusive that researchers concentrate on former.

Our intuition, as well as a proliferation of “how to manage change” literature, support the idea that especially the past two decades have been subjected to rapid, even rampant change. From opinions expressed in the literature it is clear that researchers concur that this phenomenon is likely to persist and accelerate in the foreseeable future (Ansoff, 1988; Ackoff, 1974; Pasmore, 1994). Despite its importance, the nature of change remains a fairly unexplored area of research in managerial, organisational, financial and accounting literature.

Webster (1971, p.374) defines “change” as: “the action of making something different in form, quality or state.”

Different degrees of change are recognised by Webster:

- “An instance of making ~~unbecoming~~ ~~different~~ in some particular being.” This implies a partial or gradual change, explained by synonyms such as alteration, modification or variation, and
- “A passing from one state to another marked by radically different makeup, character or operation, whether by sudden mutation or gradually by evolution.” This implies a total change explained by synonyms such as transformation or conversion.

Kanter (1982, p.279) uses the following definition of change:

“Change involves the crystallisation of new action possibilities (new policies, new behaviours, new patterns, new methodologies, new product or new market ideas) based on the reconceptualised patterns in the organisation. The architecture of change involves the design and construction of new patterns, or the reconceptualisation of old ones, to make new, and hopefully more productive actions possible.”

From the above definitions it is apparent that differing degrees of “change” result in form, quality or patterns being altered by evolutionary and/or revolutionary means. As change occurs continuously and its extent may differ it should be viewed as a *process* rather than a final state. Lawler (1986, p.232) sees change as an ongoing process, stating that it is incorrect to think that a visionary end state can be reached in a highly programmed way.

Because of the nature of change, it is often difficult to identify when change commences and when it ends. Pettigrew (1985) points out that there are no clear beginnings and ends to strategic change in organisations. The problem is also addressed by Kanter (1982, p.282) who notes that we recognise the beginning of change as the moment at which we become conscious of our own strategic action, thus neglecting to take into account the groundwork already laid before we became aware of the change. As a result, it is often difficult to pinpoint the different causes of change or anticipate the results of change. What is apparent, is that change cannot be attributed to environment only. Change is stimulated by sources both external and internal to the enterprise. McCalman and Paton (1992) classifies the general causes of change as follows:

- External changes, resulting from environmental disturbances,
- Internal changes, resulting from internal triggers such as new products, markets or organisational structures, and
- Proactive change, resulting from efforts by the organisation itself to anticipate or initiate change.

It is debatable whether change can be divided into such apparently homogeneous categories in practice. Internal change may for example be caused initially by external disturbances, while proactive change may be caused initially by internal changes.

Nadler and Tushman (1995, p.22) identify two types of change, which are illustrated in figure 3.1.

Figure 3.1 : Types of organisational change

		Change	
		Incremental	Discontinuous
Time	Anticipatory	Tuning	Reorientation
	Reactive	Adaptation	Recreation

Source: Nadler, D. A. & Tushman, M. L. (1995) Types of organisation change: from incremental improvement to discontinuous change, Nadler, D. A., Shaw, R. B., Walton, A. E. & Associates (eds) in *Discontinuous change: leading organisation transformation*, San Francisco: Jossey Bass.

Incremental change is focused, bounded and often predictable and may result in the continuous modification of organisations during a period of relative equilibrium. Discontinuous change occurs during periods of disequilibrium where change in the environment is so radical and often unpredictable that it requires the reconfiguration of the organisation in response. The second dimension of the matrix concerns the

time frame of the response. Reactive change occurs where the organisation is forced to respond to change in the environment, while anticipatory change arises where the organisation acts in anticipation of changes that may still occur. A combination of the type of changes and time frame is likely to elicit the following responses from the organisation:

- Tuning – the organisation initiates incremental change internally in anticipation of environment events;
- Adaptation – the organisation responds to incremental change in its environment;
- Reorientation – discontinuous change is recognised early in its cycle resulting in a fundamental redefinition of the enterprise;
- Recreation – the organisation is forced to change to the extent of recreation in order to survive fundamental and radical changes in its environment.

Change may also be classified by establishing the extent to which the events leading to change can be clearly identified and understood on the one hand and the effect of the events can be accurately predicted in the future on the other. Stated differently, change may be classified on the basis of cause and effect. Stacey (1992a) claims that there are three types of change namely closed change, contained change and open-ended change. Closed change occurred if, when looking back at the history of business, there is widespread agreement by the managers involved on the sequences of events which occurred. They thus agree on what happened, why it happened and what the consequences were. In other words, a strong link exists between cause and effect that can be identified clearly and allows for the accurate prediction of the future outcome. In the case of contained change, the link between cause and effect is more tenuous with causality being approximated or statistical. Management may find that they are only able to say what probably happened, why it probably happened and what the probable consequences were and are likely to be. The impact of contained change upon the future course of the business has to be qualified by probability statements (Stacey, 1992a, p.161). In the case of open-ended change, the link between cause and effect is very weak and defies

identification. Here management does not know with any clarity what caused the change, why the change occurred and what its consequences were, are and will be.

Once again both the Nadler and Stacey classifications are useful in understanding the nature of change, but should not create the impression that these categories hold true in all instances. In reality these categories may not be mutually exclusive and change may contain elements of each of the categories. Rather than being an end in itself, the creation of categories of change should be seen as a tool for achieving a greater understanding of the complex nature of change.

What is apparent from the classification categories is that managers in enterprises face a wide spectrum of change situations in every time frame, from the past, through to the present, into the future. At each point the spectrum stretches from predictable, closed change, to unknowable, open-ended change or from incremental change to discontinuous change. Managers should be able to handle all forms of change if businesses are to survive in a volatile and dynamic environment. It is unknowable, open-ended change or discontinuous change that poses the greatest challenge to managers. There appears to be general consensus in the literature that a shift is taking place in the nature of change, with predictable change occurring less often and unpredictable change occurring with increasing frequency. Nadler and Shaw (1995) predict that business is moving from an era dominated by incremental change to one of discontinuous change. In the 1990s and beyond the focus will be on altering the fundamentals of organisations rather than merely improving them. Therefore those management teams who are able to handle unpredictable change will create competitive advantages for their companies. Management may use flexibility, the ability of an enterprise to adapt quickly and effectively, as an important tool in managing change within the business environment.

It is not only the nature of change that has shifted from the incremental to the discontinuous, for the pace of change has also escalated during the past two decades. Whereas social change may previously have passed unnoticed in an individual lifetime, today change has become so rapid that reality often overtakes the images of fiction (Snow in Ackoff, 1974, p.4). Toffler (1985) confirms that the corporate environment has grown increasingly unstable, accelerated and

revolutionary, while Pasmore (1994, p.37) predicts that the pace of significant change will accelerate and the complexity of change will increase even further. He concludes that organisations' responses to change will largely determine their effectiveness and survival.

The acceleration of change may be spurred by factors such as the extensive literature on the existence and handling of change, which has created a greater awareness of the phenomenon. This awareness, together with a willingness and ability to deal with it, ultimately creates more change. Advances in technology and knowledge and the global economy, too, have contributed to the momentum that change is gaining. Some authors argue that these are merely symptoms of a much larger shift, even revolution, that has taken place on the political, social, technological and economic fronts (Naisbitt, 1982; Toffler, 1994).

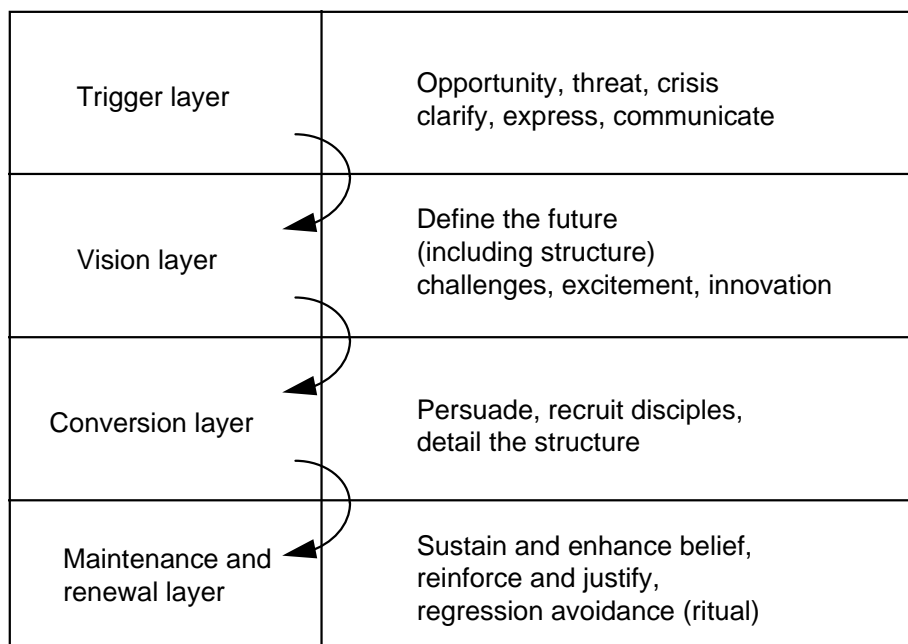
Whatever its causes, the rate of global change is likely to persist into the 21st century. As far back as the late 1980s, Ansoff (1988, p.12) noted that change continues at a pace which makes it safe to predict that the current escalation of turbulence will persist at least into the next century. He added that it is harder to predict whether the acceleration will persist beyond this horizon, or whether the environment will settle down by starting to absorb and exploit the accumulated change. As a result of the accelerating change in the business environment a premium is now placed on certain capabilities within the organisation and particularly on adaptability, flexibility and responsiveness. Successful firms will learn and act at a faster rate than their competition and their leaders will be effective anticipators and managers of large scale change (Nadler & Shaw, 1995, p.3). They will be supported by an accounting information system, which can and does adapt to the changing demands for information resulting from a dynamic business environment.

3.3 Phases in handling change University of Pretoria.etd

Relatively few studies have been undertaken on the political processes, and different phases of behaviour for handling change in business organisations (Pettigrew, 1985). Yet the organisation consists of people acting individually and in groups, which means that the behavioural aspects of change is central to understanding the impact the phenomenon on the organisation. This section addresses briefly the chain of reactions of people in organisations when dealing with change.

Buchanan and McCalman (1989, p.198) suggests that four phases characterise behaviour of people with regard to the recognition, selection and implementation of change over time. They suggest that this process, called “perpetual transition management”, consists of four interlocking subprocesses, as illustrated in figure 3.2.

Figure 3.2 : Model of perpetual transition management



Source: Buchanan, D. A. & McCalman, J. (1989) *High performance work systems: the digital experience*, London: Routledge, p.198.

The *trigger layer* concerns the identification of the needs and openings for major change formulated in the form of opportunities, threats or crises. To recognise the need for change, management and employees should not only be aware of change

but also be able and willing to deal with change. Furthermore, management should actively monitor the organisation together with its external environment that is on a continual basis, so that it will be able to recognise the needs and opportunities for change.

The *vision layer* establishes the future development of the organisation by articulating a vision, and communicating this effectively to the people in the organisation. A vision for the future is necessary as an effective response to events causing change. It also serves as a unifying and guiding framework which motivates employees. Furthermore, a vision is the means by which a business and its products are differentiated from its competitors.

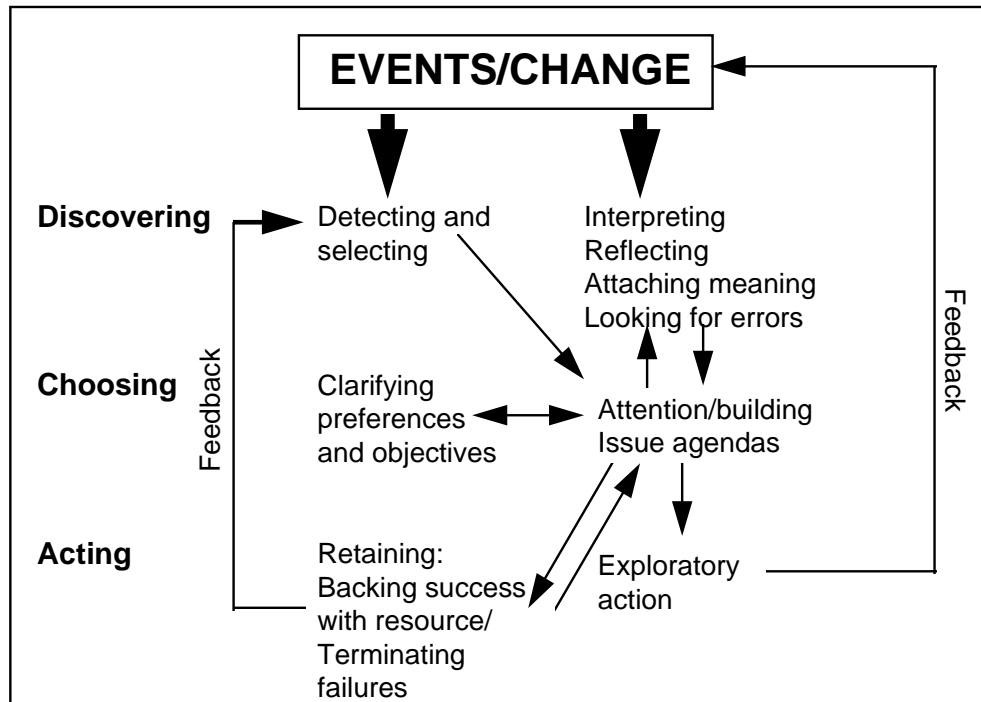
The *conversion layer* mobilises support for the above vision as the most effective means of dealing with the triggers of change. Support is obtained through effective communication, the building of support groups, lobbying and ultimately by reaching consensus. Failure to obtain support will result in symptoms such as “paralysis by analysis” and “death in the drawer”, which in essence means that implementation is resisted and prevented by employees.

Finally, *the maintenance and renewal layer* identifies the way in which the changes can be sustained and enhanced through alterations in attitudes and behaviours and is a means of avoiding regression back to tradition (McCalman & Paton, 1992). The decay of implemented change occurs when the events that triggered change become history and are forgotten, and the vision becomes less clear when the originators change the focus of their attention or leave the organisation. In addition, staff replacements may not have the same commitment so that the importance of change decreases and becomes routine. A conscious and ongoing effort is therefore required to maintain the implemented change.

The human process of handling change commences at the trigger layer. It implies that an awareness of the need for change, as well as the ability to recognise and respond to change, should be created within the organisation. The creation of flexibility in the organisation assists the enterprise and its people in adapting quickly and efficiently to change.

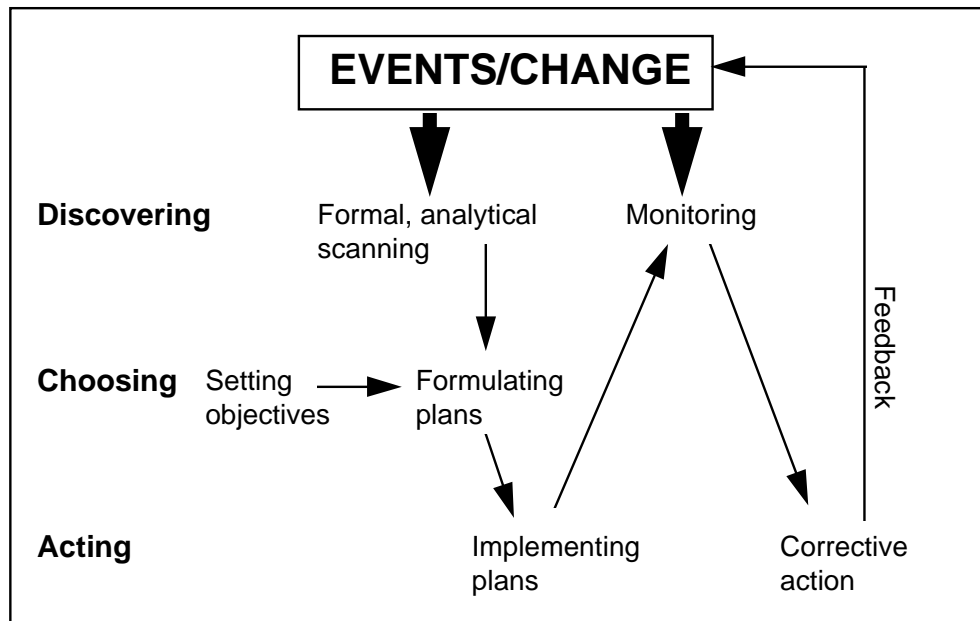
Stacey (1992a) uses a somewhat different approach to identify the phases of behaviour for dealing with change. The different phases for open-ended change and for closed or contained change, as set out by Stacey are depicted in figures 3.3 and 3.4 respectively.

Figure 3.3 : Model for dealing with open-ended issues



Source: Stacey, R. D. (1992a) *Managing chaos, dynamic business strategies in an unpredictable world*, London: Kogan Page, p.88.

Figure 3.4 : Model for planning/monitoring control in closed/contained situations



Source: Stacey, R. D. (1992a) *Managing chaos, dynamic business strategies in an unpredictable world*, London: Kogan Page, p.169.

The behaviour is categorised into discovering, choosing and acting phases. With open-ended change, where cause and effect is tenuous, the organisation has no alternative but to rely on the individuals to notice, discover and pursue some issue, aspiration or challenge. And in order to do this, those individuals have to rely on their experienced-based intuition and ability to detect analogies between one set of ambiguous circumstances and another (Stacey, 1992a). In the case of closed and contained change there is a strong link between cause and effect, with the result that the need for change is recognised through the formal, analytical scanning of the environment.

The *choosing* of alternatives in situations of open-ended change is subject to a complex, political process of forming coalitions within the organisation, discussing the issue of change as part of the strategic issues agenda and reaching sufficient consensus and commitment to proceed to action. If the change is closed or contained, regular patterns in action is produced, allowing objectives to be identified, the alternative most suitable for meeting the objectives to be selected and plans to be formulated to implement the choice.

During the *acting* phase, open-ended change requires the implementation and maintenance of change through a complex process of negotiation in order to obtain the necessary backing and support within the organisation. Action may have to be experimental at first, to provide a vehicle for testing and learning. However, in the case of closed and contained change, structured plans will be implemented and monitored formally.

In the Stacey model, as in the Buchanen and McCalmen model, the chain of behavioural phases is only activated once the need for change has been identified and recognised. It is therefore vital for management to create an environment and more particularly, incentives for people within the organisation to be on the alert for change and to initiate and implement the process of change in the organisation.

3.4 Resistance to change

One of the biggest threats to the successful recognition and implementation of change in the organisation is the resistance of people to change. In the management of their environment, people prefer to stick to trusted and proven coping techniques. Change means that they have to find new, perhaps less successful, ways of managing their own environment (Morris & Rabin, 1995, p.48).

Although the identification of the different defensive routines that may be used to resist change is no easy task, it is an essential one. Argyris (1985, p.3) notes that these defensive routines are probably the most important cause of failure in the implementation of sound strategy, regardless of the approach used. He argues that people are programmed to create defensive routines and cover them up with further defensive routines. Part of the solution to the problem is to make people more aware of their, often subconscious defensive routines and to assist them in recognising them both in themselves and in others. However, this is not always successful and a frequent reaction is not to resist openly, but rather surreptitiously, resulting in unexpected delays, rising costs and other "inexplicable" problems hampering in the process of change in the organisation.

Ansoff (1988, p.207) identifies the following typical examples of resistance:

During the change process:

- Procrastination and delays in triggering the process of change,
- Unforeseen implementation delays and inefficiencies which slow down the change and increase the cost above the original estimate, and
- Efforts within the organisation to sabotage the change or to “absorb” it in a welter of other priorities.

After the change process:

- There is a typical performance lag and change is slow in producing the anticipated results, and
- There are efforts within the organisation to roll back to pre-change status.

The resistance to change may take place on an individual and/or group basis. In a group, the resistance to change shows a reinforcing, supportive, interactive, more permanent and stable nature exceeding those of most individuals. It is therefore more difficult to break down the resistance to change of a group than that of a single person. Ansoff (1988) notes that it is much easier to remove an individual, who is a major stumbling block to progress, than it is to change the culture of a group, or to deprive it of power.

To counter the negative impact of resistance to change, strategies should be formulated to anticipate and deal specifically with defensive routines. Argyris (1985, p.340) suggested the following activities for this purpose:

- *Start small:* Begin with one or two relatively clearly defined technical or organisational problems that will require the reduction of the defensive routines if they are to be solved effectively. Obtain commitment for the programme.
- *Start at the top:* These activities cannot succeed without the commitment from the top. Management has the greatest power not only to encourage and

nurture change, but also to monitor it and take responsibility for the direction and pace of development.

- *Start with an important problem:* A programme that deals with trivial problems will produce trivial results. Conversely, a programme designed to change too much all at once is, also doomed to failure. The goal is therefore to identify moderately tough problems where there is high probability of success.
- *Start with clearly defined change processes:* Although the direction, pace and target for change may have to be open ended, the nature of the change activities as well as the criteria for defining high quality progress should be stated unambiguously at the outset. If everything is open ended, the danger exists that the programme may become uncontrollable.

These activities should firmly place the responsibility for the direction and pace in the hands of the people facing the change process to establish ownership. The people involved should be made aware of the defensive routines they, others and groups are likely to follow, enabling them to recognise and counteract them.

Morris and Rabin (1995, p.51) identify the following additional strategies that may curtail the resistance to change:

- Identify and develop dissatisfaction with the current state. A set of events should be managed in such a way that the people are allowed to experience for themselves the need for change.
- Participation in planning and implementing change. One of the most consistent findings in the research on change is that participation in change tends to increase excitement, reduce resistance, build ownership and thus motivate people to make the change work (see Coch & French, 1948; Vroom, 1964; Kotter & Schlesinger, 1979).
- Build in rewards. Support the desired behaviour both during the transitional state and the future state with a reward system. If people perceive that they will be rewarded for, some action, they are more likely to do it.
- Allow time and opportunity to disengage from the present state. People feel a natural attachment to the way things are. They should therefore be provided

with the appropriate time for letting go and the opportunity to express their feelings in small group discussions.

Similar and further strategies to overcome resistance to change are suggested in the literature (see e.g. Grimaud, 1994; Fisher, 1995).

Discontinuous change and incremental change cannot be adopted and implemented successfully in the organisation unless the ingrained resistance of people affected by the change is addressed effectively. If flexibility is used in an organisation as a means of initiating and supporting change, resistance to change may also manifest itself as a resistance to flexibility. The strategies for curtailing defence routines to change may thus apply equally when creating flexibility in the organisation.

3.5 The changing business environment

The rate of social, political, technological and economic change is greater today than it has been at any time in the past. Although the past has also been subjected to change, Ackoff (1974) notes that what differentiates our time from previous ones, is the nature and pace of change that have occurred.

Allen (1994) identifies a high and rising pace of change in three spheres of influence:

- Technologically, arising from the far-reaching development in computers, telecommunications and robotics;
- Socio-politically, as a result of the demise of so-called communism and a shift of emphasis away from the state towards the individual; and
- Economically, resulting in whole industries being repositioned and new industries being created, volatility in interest rates, exchange rates and the development of financial instruments.

Some authors believe that the change was initially caused by technological advances. Walter Wriston, former chairman of Citicorp (in Foster, 1986, p.45), noted:

“The new system was not built by politicians or economists. It was built by technology. In some respects the new world financial system is the accidental by-product of communication satellites and engineers learning how to use the electromagnetic spectrum up to 300 gigahertz.”

These technological motivations have made instant global communication possible and have fuelled the race to gain competitive advantage through knowledge, expertise, service excellence, information and time.

Ansoff (1988, p.13) argues that the underlying cause of the new change is society's arrival at a new level of economic affluence, while it is the result of a shift of emphasis from the state to the individual according to Allen (1994). Drucker (1980) contends that change is very active in three related facets in the environment, namely the economic, social and political facets. He maintains that from an economic perspective, the world has become integrated and interdependent as never before, resulting in a true world economy that is moving towards the acceptance of a transnational monetary currency. From a political perspective, change is resulting in increasingly fragmented world politics, although the process of political disintegration clearly has not run its course. Drucker concludes that in the social sphere change has resulted in the advent of an employee society in which business, especially large business, is run for the benefit of the wage and salary earners.

Less obvious changes have also taken place on the scientific and research front. The “old science”, which focused on objects and on the basic building blocks of matter, has been replaced by a “new science” focusing on underlying currents which include the movement towards holism, relationships and open systems. In the past, logical thought processes and rigorous research methods were often used to advance the boundaries of knowledge. Now March (1978, p.3) contends that discoveries increasingly result from lucky guesses based on shaky arguments and absurd *ad hoc* assumptions which produce formulae that turn out to be right, though at first no one can comprehend why on earth they should.

The different researchers and authors are in agreement that the turbulence and rapid change experienced in the business environment is not only the result of economic influences, but also of shifts in the political, social, scientific and technological spheres. The changes in each of these spheres are often interrelated and reinforcing, causing change in other spheres.

A business operating in the 1990s cannot afford to ignore these global shifts as every business exists and competes in a macro environment. The different changes combine to create a more uncertain and complex environment in which businesses have to operate and survive. Kanter (1982) believes that business organisations are facing changes that are even more extensive, have more far-reaching implications, and are more fundamental than the changes that led to the “modern” industrial system during the period 1890 to 1920.

If business organisations are required to change fundamentally, then fundamental changes should also be made to their accounting information systems.

These changes in the business environment are expected to continue in the foreseeable future. Drucker (1980) submits that, in an environment of great uncertainty, the one certainty about the times ahead is that they will be turbulent. For businesses to survive or even thrive in such turbulent times, the management and the employees will have to accept change as the norm and expect and effect it on a daily basis. Johnson (1992), too, believes that change and turbulence will increase in the future and will become a way of life while Peters (1991) contends that no skill is more important now than the corporate capacity to change and adapt.

The price to enterprises for failing to recognise, study and adapt to change is very apparent from the statistics (Senge, 1990, p.17):

“Few large corporations live even half as long as a person. In 1983 a Royal Dutch survey found that one third of the firms in the Fortune 500 in 1970 has vanished. Shell estimates that the average lifetime of the largest industrial enterprises is less than forty years, roughly half of the lifetime of a human being.”

Kanter (1982) confirms that business failures have been going up steadily. By June 1982, US business failures had reached the highest level since the Great Depression of the 1930s. She argues that this is simply one indication of a set of wholesale shifts in industrial adaptation, or a lack thereof. Of the sample of excellent companies identified by Peters and Waterman (1982) two thirds slipped from the list within five years of being identified (Stacey, 1992a). Peters (1991) states that the rapid shifts in the Fortune 500 attest that those who don't change will not survive.

The above statistics emphasise that survival has and should become a prime concern of enterprises operating in this rapidly changing business environment. A maximisation of profits or wealth by enterprises no longer guarantee that companies will continue to survive in the future.

The survival of organisations is receiving increased attention in the literature on the management of change, too. According to Toffler (1985) management of enterprises may be dramatically underestimating the adaptive changes needed for survival, while Johnson (1992) states that to survive in a global economy, change must become a way of life. Drucker (1980) concludes that in turbulent times, the first task of management is to make sure of the institution's capacity for survival. He proposed, already in 1958, that survival should form the central objective of organisations and the foundation of a theory of business behaviour. He argued that profit maximisation is the wrong basis for the explanation of business behaviour, whether it is interpreted as short range or long range profits or a balance of the two. The relevant question is "What minimum does the business need?" not "What maximum can it make?"

The question of the objectives of a business is one of the more controversial issues of business ethics. Doctrines such as accountability to stockholders, long-term survival or negotiated consensus among participants have been proposed (Ansoff, 1988, p.28). A detailed discussion of the merits and demerits of profit maximisation, creation of stakeholder wealth, survival or other objectives as the central business objective of an enterprise extends beyond the objectives of this chapter. Suffice to say, based on the failure statistics and the opinions expressed in the literature, that the need for survival is and will continue to become an increasingly important

consideration of the management of businesses operating in a volatile and dynamic environment.

3.6 Summary

The environment has been subjected to change to the extent that it is viewed as being turbulent, volatile and dynamic. The nature of change has shifted from reasonably predictable closed or incremental change to unpredictable open ended or discontinuous change. In addition, the pace of change has accelerated and is expected to continue to increase into the next century. This creates a business environment of increasing complexity and uncertainty. In order to survive, businesses and their accounting information systems need to operate as open systems. Open systems interact and adapt to changes in its environment, thus protecting their continued survival or moving towards homeostasis.

As uncertainty increases in the environment, enterprises can enhance their ability to adapt to the business environment by becoming more flexible. Flexibility improves the ability of enterprises and their employees to respond more quickly and efficiently to stimuli from the environment, than their competitors. Flexible organisations are therefore, better equipped to deal with change and are more likely to survive in times of turbulence. Similarly, a flexible accounting information system lends an organisation the ability to adapt more rapidly and efficiently to the changing demands of its users than an inflexible information system.

Organisational effectiveness requires that enterprises recognise the need for different types of change and manage them accordingly (Nadler & Shaw, 1995, p.13). Increasing value should be attached to flexibility. As it enhances the ability of the enterprise to adapt, flexibility can be a tool available to management to deal with uncertainty and create a competitive advantage for their enterprises.

Chapter 4 Managing businesses in a changing environment

“To cherish traditions, old buildings, ancient cultures and graceful lifestyles is a worthy thing - but in the world of technology to cling to outmoded methods of manufacture, old product lines, old markets, or old attitudes among management and workers is a prescription for suicide.”
(Maddock, 1982)

4.1 Introduction

The rapid and often discontinuous change that is taking place in the environment has a direct impact on the manner in which businesses are managed. Managers are finding that old proven recipes for success and specialised routines are no longer effective and are of necessity adopting new approaches to managing their companies. These changes, both in the environment and in the organisation, also have an impact on the accounting system and accounting function of organisations. Accountants have to be aware of these changes so that they can adapt accounting information to meet, and even anticipate, the changing demands of users.

The changes that are taking place in the environment were addressed in chapter 3. In chapter 4 the impact of these changes on businesses and the manner in which they are managed is considered; it is noted that a paradigm shift has taken place in management theory, as a result of the rapidly changing environment. The nature of the changes to which businesses are exposed determines the extent of the response required by management. A survey of literature is used to identify the extent and type of responses that are required both of businesses and their management in adapting to a competitive and global business environment. These responses are addressed as prescriptions for managing change in business organisations.

4.2 A shift in managerial approach

Managing a business in a volatile environment is fundamentally about handling change. Nadler and Shaw (1995) contend that businesses surviving in the coming decades will be those who are able to respond quickly and effectively to changing environmental conditions. This puts a premium on certain capabilities, such as adaptability, flexibility and responsiveness. They conclude that successful firms will learn and act at a faster rate than the competition and their leaders will have no choice but to be effective anticipators and managers of large scale change.

A paradigm shift has taken place in the literature on management theory in response to the devastating effect that rapid change has had on businesses. Originally, management theories were attractive because they were straightforward and not laden with ambiguity and paradox (Peters & Waterman, 1982). However, these well-tried methods fail to produce successful results in the new environment.

It is therefore not surprising that the approaches and methods suggested to management in the literature have changed substantially in recent times. Sconberger (1990) suggests that more have been learnt about the right way to run a business in the 1980s, than in the preceding half century.

The evolution that has taken place in management theories is diagrammatically depicted by Scott (1978) in a two-dimensional grid (figure 4.1).

Figure 4.1 : Four stages of Management Theory and practice

	Closed system	Open system
Rational actor	I 1900-1930 Weber Taylor	III 1960-1970 Chandler Lawrence Lorsch
Social actor	II 1930-1960 Mayo <i>et al.</i> McGregor Barnard Selznick	IV 1970-? Weick March

Source: Scott, W. R. (1978) Theoretical perspectives in environments and organisations, in Peters, W. J. & Waterman, R. H. (1982) *In search of excellence*, New York: Harper & Row, p.93.

On the one side of Scott's grid there is a progression from mechanical thinking about organisations (closed systems) to gestalt thinking (open systems). The closed systems view ignores the effect of the environment on the organisation, while the open systems view recognises its impact. On the second side of Scott's grid, there is a progression from a rational to a social view of organisations. Rational, in this context, means that clear aims and objectives for the organisation are deemed to exist, and that these can be determined. The social view holds that decisions about objectives are based on value rather than mechanical choices and that such choices are made not so much by clearheaded thinking as by social coalitions, past habit patterns and other dynamics that affect people in groups (Peters & Waterman, 1982, p.91).

In terms of this evolution, Management Theory has adopted increasingly complex problem-solving approaches. Ackoff (1974) notes that the management process has become "messy". for management now concerns the handling of ambiguity and paradox on a daily basis. The rational actor has been superseded by the complex social actor, a human being with built-in strengths, weaknesses, limitations, contradictions and irrationalities. A business insulated from the outside world has

been superseded by the business buffered by a fast-paced, ever-changing array of external forces.

The paradigm shift in management approach from a monistic, closed, rational view to a holistic, open, social view is also addressed by Kanter (1982). She contrasts the segmentalist assumptions of the old model with the integrative assumptions of the new model by means of a table.

Figure 4.2 : Assumptions underlying Management Theory

Old model assumptions	New ("political") model assumptions
<ul style="list-style-type: none"> • Organisations and their participants have choice; freedom of contract; limits set only by own abilities and capacities. 	<ul style="list-style-type: none"> • Organisations and their participants face environmental constraints; resource limits; conflict and unequal power.
<ul style="list-style-type: none"> • Organisations tend toward "closed system" (rational focus and economic models). 	<ul style="list-style-type: none"> • Organisations tend toward "open system" ("institutional" focus and political–economy models).
<ul style="list-style-type: none"> • Organisations have limited purposes (and are therefore able to stay bounded because they produce bounded and identifiable outputs). 	<ul style="list-style-type: none"> • Organisations have multiple activities and impacts ("uses"), any one of which is subject to scrutiny by other groups; bargaining by stakeholders to set organisations' "official goals".
<ul style="list-style-type: none"> • Key management problems: Control (internal and external), Coordination of isolated segments, Reduction of friction around the work process. 	<ul style="list-style-type: none"> • Key management problems: "Strategic decisions", Issue management, External political relations.
<ul style="list-style-type: none"> • Internal, micro-focus: Primacy of leadership and inter-personal issues. 	<ul style="list-style-type: none"> • External, macro focus.
<ul style="list-style-type: none"> • Need to study static or relatively invariant properties of the organisation - e.g. how size or formal structure affects "success". 	<ul style="list-style-type: none"> • Need to study bargaining, competition, and mutual adjustment.
<ul style="list-style-type: none"> • Organisational effectiveness is a technical matter, based on objective standards and relatively universal human and organisational requirements. 	<ul style="list-style-type: none"> • Organisational effectiveness is a political matter, based on standards set by an organisation's "dominant coalition" after bargaining among constituencies.

Source: Kanter, R. M. (1982) *The change masters: corporate entrepreneurs at work*, London: George Allen & Unwin, p.399.

Kanter (1982) suggests that organisations that can be studied and managed in terms of the internal dynamics have been replaced by organisations that are highly dependent on and is formed by a volatile environment. The idea of free choice with own ability as the only constraint to success has been replaced by external; decision

making which is not based on organisational criteria. Explanations for the failure within the organisation were originally sought in factors internal to the individual such as incompetence, greed and lack of motivation. Now it is recognised that the actions of individuals often arise from the context in which they operate. The old view held that the ideal organisation should be divided into specific functions with specialisation, job descriptions and clear lines of authority. According to the modern view, co-ordination is more critical than differentiation and individuals should have responsibility for the consequences of their actions far beyond their job descriptions and areas of specialisation. As a result, increasing use is made of cross-functional teams in which people with different areas of specialisation and job descriptions work together to achieve the goals of the enterprise.

This shift in management theory has far-reaching implications for management, employees and business organisations. The manner in which a business is run will impact on its information system, and more specifically its accounting information system. If the organisation is managed as an open system, its accounting system should also be an open system so that it can respond to the changing needs of its users. The accounting information system should be user- or customer-driven. If the organisation is deemed to consist of social rather than rational actors, the content and use of the accounting information system should be adapted in line with these new assumptions. Accounting information should thus be used less as a control mechanism and more as a facilitator of change and continuous improvement.

4.3 Types of organisational change

Industries and businesses are exposed not only to different levels of change, but also to different types of change, with the interaction of the two determining the extent of the required response and ultimately adaptation. High levels of change will call for high levels of response by businesses, whereas discontinuous change will require more radical action than in the case of incremental change.

Nadler and Tushman (1995, p.24) identify four types of organisational responses that are required for the different types of organisational change, namely tuning, adaptation, reorientation and recreation (see figure 3.1).

Tuning is required where management anticipates certain events or seeks to improve efficiency in a business, and therefore initiates incremental change in the organisation. The requirement for change is not immediate, the change originates internally and the process is often initiated to enhance the fit between organisation strategy and structure.

Adaptation is usually initiated externally, in that changes in the environment calls for organisational responses in order to avert negative consequences. Although these organisational responses may be major, they do not usually require a fundamental reorganisation of the organisational strategy, culture and structure.

Reorientation is required when management anticipates events in the environment that will substantially affect the industry and the organisation. It calls for a fundamental re-evaluation of organisational strategy, culture and structure. This type of change is anticipated and initialised in the organisation before the need for organisational change becomes imperative, thus allowing the gradual introduction of fundamental change.

Recreation is required where management has failed to anticipate future events in the environment that requires fundamental changes to the business organisation. Consequently the organisation is required to respond to fundamental changes in its strategy, culture and structure over a short time span in order to survive. Because of the limited time available to effect such change it is often disruptive and may therefore result in the destruction of elements in the organisation, as well as in a departure from existing core values.

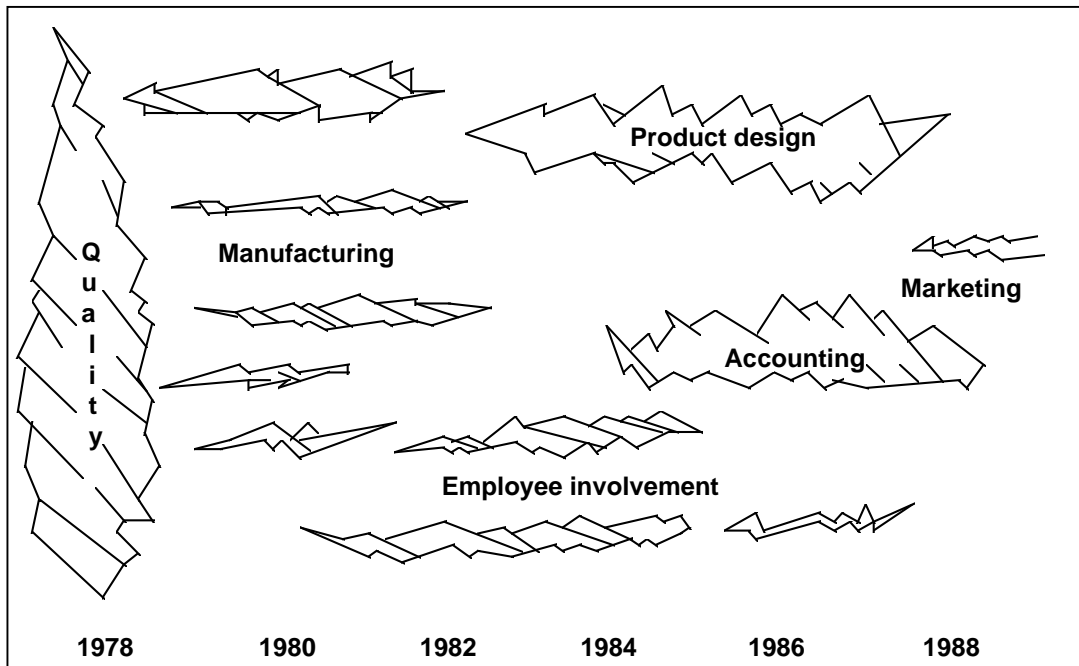
Nadler and Tushman (1995) note that the well-known term of “re-engineering” no longer encompasses the extent of change required in organisations in response to especially discontinuous change.

The extent to and pace at which the prescriptions for managing change in the literature are implemented in business organisations are influenced by management's assessment of the levels of change, the nature of the change and their willingness to act proactively. If management acts proactively in initiating change, the change will be introduced in a planned and organised manner. Such change will be less disruptive to the organisation than in cases where management is forced to implement change reactively within short time span.

4.4 Prescriptions for business change

A proliferation of literature on how to manage a business in a changing environment has prescribed a number of ideas and responses for survival and success. Schonberger (1990) describes the new movements in management as earthquakes, tremors and aftershocks. He suggests that these ideas and prescriptions did not develop simultaneously, but rather in the form of tradition-shattering movements over time with the first movement lending support to and creating an incentive for the second, and so forth. His diagram of earthquakes, tremors and aftershocks is shown in figure 4.3.

Figure 4.3 : Earthquakes, tremors and aftershocks



Source: Schonberger, R. J. (1990) *Building a chain of customers: linking business function to create a world class company*, New York: The Free Press, p.2.

The first and largest movement arose from the need of especially US companies to improve the quality of their products in order to remain competitive with Japanese companies. The idea of quality was entrenched in organisations by techniques such as Total Quality Management, Quality Function Deployment and the introduction of quality circles. The aim was to supply products and services that would meet the quality requirements of customers. It required that the whole organisation become customer oriented.

The second movement addressed the manufacturing techniques such as Just in Time, Total Preventive Maintenance, Computer Numerically Controlled Machines and later Flexible Manufacturing Systems. The aim of the second movement was not only to improve the manufacturing process by reducing labour, scheduling, material handling, stockkeeping and inspecting, but also by providing a better service to the customer through shorter lead times, better quality, and customised and personalised products.

The third movement arose from the involvement and empowerment of the employees in the organisation resulting in all employees, at all levels, and all functions, having a say in virtually everything (Peters, 1991). Empowerment developed through increased ownership in the organisation, training, crossfunctional responsibility, a bottom-up approach to management and a flexible approach to control. The employees of the organisation were recognised as the prime source of value added in a new and rapidly changing environment, and the prime means of achieving and sustaining a competitive advantage.

The product design movement resulted in the simplification of product design through standardisation, modularity and reduction of the number of parts, the number of operations and the need for resources. The accounting movement, focusing more on managerial accounting, developed new techniques such as activity based costing and target costing to deal with the increased demand for more accurate and useful information. The marketing aftershock too resulted in a change of focus from national to international marketing and competition. The marketing department formed closer alliances with people in operations, design and development, working as a team to ensure that the correct type and quality of products and services were marketed to the correct market segments.

It appears from the figure that the accounting movement is complete. However, it only starting to gain momentum, as new opportunities for experimenting, innovating and adapting the accounting information system have only been recognised in recent years.

The Schonberger diagram does not identify a number of other aspects that are necessary components of the survival kit of a business operating in a dynamic environment. A successful business need to be innovative and introduce and use new products, services, techniques and structures to stay ahead of competitors. These firms will move quickly to develop and use new technology to its advantage. The management style will change from a prescriptive and control-oriented approach to a supportive and facilitating approach. Leadership as a business quality will become increasingly essential to steer the firm through complex, highly competitive times. Decision making in the business will become more strategy oriented and the

future direction of the firm will be determined largely by its vision. (The area of strategic decision making has received little attention in accounting and is an area which is discussed in more detail in the next chapter.) Finally, the structure of the organisation will change to support the new management strategies. Thus all of these changes to organisations will affect the accounting information system which will have to adapt to the changing demands for information.

The prescriptions for managing an organisation in turbulent times are discussed in more detail in the following sections. They are not necessarily applicable to all types of organisations. The manufacturing and product design sections will for example not apply to service companies. It is also necessary to consider the reinforcing relationship between categories, in that a philosophy and strategy of total quality management will influence product design, manufacturing and marketing. Concluding each section is a brief discussion on the recognition and measurement of each of the prescriptions, together with a brief discussion on how the accounting information system will be affected by the new management philosophies and techniques of the organisation.

4.4.1. Quality

Quality does not only refer to goods and services but includes quality of time, place, equipment and tools, processes, people, the environment and safety, information and measurement (Schonberger, 1990). Quality is an ongoing process that has to be so pervasive throughout the company, that it becomes the philosophy and culture of the whole company. All firms and each unit within the firm need to adopt the same strategy, to serve the customer with ever better quality, lower cost, quicker response and greater flexibility (Schonberger, 1990). This perspective of Schonberger will be developed further in chapter 6, where quality, cost and time are identified as three of the four strategic aspects of flexibility. Flexibility itself is not viewed as a dimension or aspect but rather as a comprehensive construct which encompasses all these dimensions. Quality should be viewed from the perspective of the customers and potential customers. The aim should be to satisfy existing needs of customers with quality products or services, and to identify, anticipate and create new needs. This

requires the cultivation of a close relationship between the organisation and its customers.

A serious threat to an organisation that has attained a certain level of quality is sustaining that level. The process of quality products and services requires continual renewal to maintain and improve quality throughout the organisation. Peters (1991) suggests that the following attributes are amongst others, necessary to sustain quality in the organisation:

- A management obsessed with quality;
- One guiding system or ideology on total quality;
- The measurement of quality;
- The creation of quality incentives;
- An organisation structure supporting quality improvement;
- Involvement of distributors and customers, together with management information systems, personnel, accounting, treasury, sales, order entry and shipping as part of the quality programme.

The process of quality improvement can only be sustained if the quality within the company is measured on an ongoing basis. Ansari *et al.* (1997) define quality costs as costs that are incurred to ensure that a product or service meets or even exceeds customers' expectations and maximises the value customers receive for a product. An accounting system that measures quality costs is essential in pursuing quality as a strategic goal. The old cliché "What gets measured gets done," applies to quality improvement as well as to other prescriptions. Improvement is only possible once something has been measured repeatedly to indicate the trend, level, speed, direction and acceleration of the phenomenon. Measurement should commence at the start and continue throughout each function of the programme. The type of measures that can be used to assess quality are

- *product quality* as perceived by customers, and measured by the number of customer complaints, returns, warranty expenses and service calls;

- *poor quality costs*, measured by scrap, rework, defect rates, and machine and labour downtime;
- *assessments of suppliers* measured by number of returns, the percentage or number of poor quality products to total products; and
- *share of revenue* from repeat sales to old customers in relation to total sales.

These and other measures should be initiated in the accounting information system to support the quality objective and the process of continuous improvement in organisations.

The accounting function itself should also strive to produce a product of high quality, namely useful and relevant information. This requires close and ongoing cooperation between accountants and the users of financial information so that their changing needs can be identified and met.

4.4.2 Innovation and technology

The dynamic business environment requires that innovation become a way of life. Innovation is difficult to define and often poorly understood. According to Toffler (1985), innovation is not just a matter of products or technology, but is also about people. A definition of innovation that encapsulates all these different aspects is provided by Kanter (1982, p.20):

“Innovation refers to the process of bringing any new, problem solving idea into use. Ideas for reorganising, cutting costs, putting in new budgeting systems, improving communication, or assembling products in teams are also innovations. Innovation is the generation, acceptance and implementation of new ideas, processes, products or services.”

Foster (1986) comments that successful companies such as IBM, Hewlett-Packard and Johnson & Johnson have made a number of assumptions regarding change and innovation: They assume that the day after tomorrow will not be like today. They assume that when change comes, it will come swiftly. They believe that innovation is inevitable and manageable. They believe that managing innovation is the key to

sustaining high levels of performance for their shareholders. They assume that as risky as innovation is, not innovating is riskier.

Being innovative requires continued creativity throughout the organisation. Drucker (1985) contends that innovation has to be decentralised, *ad hoc*, autonomous, specific and micro-economic and it should rather start small and be tentative and flexible. He argues further that innovation is not to be found in the massive aggregates with which the planner deals with of necessity, but in the deviations therefrom – in the unexpected, in the incongruity, in the difference between “The glass is half full” and “The glass is half empty”, in the weak link in the process. To successfully obtain and maintain a steady flow of innovation in the organisation, everyone needs to be committed and involved. It is a fallacy to believe that innovation takes place only in the research and development department. If everyone, in every function, constantly pursues innovation, the average firm’s overall capacity for innovation will of necessity increase dramatically (Peters, 1991).

The role of management in this process is to remove barriers to creativity and to build an environment and create a culture in the organisation that is conducive to innovation. This may require further training of staff, restructuring of the organisation, the development of a reward system linked to innovation, the setting of innovation targets and the deliberate creation of instability within the firm.

Since innovation is central to success in a changing environment, the rate and extent of successful and unsuccessful innovation should be measured, although there are difficult issues such as specification and definition that need be addressed. Even though measures may not always be reliable, new ways need to be developed to measure the flow of innovation and creativity in the organisation. Management may set the targets for innovation to serve as a benchmark. Measures such as the number of innovative projects started, the number of pilot tests undertaken, the amount of incentives paid to innovators and the number of failed projects, could be used to monitor progress in the organisation. Such innovation and incentives should also extend to the accounting system. It is only through creativity, innovation and experimentation that Accounting will be able to maintain its position as the language of business.

Companies are using new technology to improve their competitive advantage in global markets to an increasing extent. Successful companies are flexible and quick to abandon old technology and introduce the new. They focus on using the right technologies at the right time, on protecting their positions and on having the best people (Foster, 1986).

A number of decisions are made about technology in companies:

- Whether to invest in new technology or not;
- Which technology to invest in;
- Whether the people in the organisation will be able to adapt to the new technology;
- When to adopt new technology; and
- How to implement the new technology.

The acceptance, implementation and use of technology is crucial if the organisation is to gain the maximum benefit. The use of new technology often has important cost and risk implications for an organisation, as a large proportion of the total costs may have to be incurred before production or utilisation even commences. It may be useful to consider the life cycle costs of technology *vis á vis* the costs incurred from the date of investigating the new technology to the date of its discontinuance. Life cycle costing recognises that the majority of costs are incurred or committed before production or implementation and that the management and control of costs should already commence during this phase (Ansari *et al.*, 1997). The recovery of such costs is dependent not only on the steady flow of cash and/or benefits, but also on the intellectual abilities within the organisation to ensure that the technology is managed in an increasingly efficient, innovative and productive manner.

Technology should be used to attain, sustain and improve competitive advantage for the organisation, but an incorrect, unproductive or inefficient use of technology may very well have the opposite effect. The application of technology in the organisation should be measured to ensure optimised and continuously improving usage. This is

an aspect that has received [virtually no attention](#) in Accounting and is seldom disclosed in corporate reports. The development of measures of the extent and efficiency of use of new technology in an organisation depends on the nature of the technology. For flexible manufacturing systems, for example, Jaikumar (1986) suggests indicators such as system development time, types of parts produced, annual volume per part, extent to which systems are unattended by labour and the utilisation rate of the system in terms of shifts. Innovative and appropriate indicators should be developed for each type of new technology which is introduced into the organisation. Business organisations use technology to achieve competitive advantage. Accounting information systems could also use technology to gather, process and distribute information more efficiently both within and outside the organisation.

4.4.3 Product design

A company can gain competitive advantage through product design. The impact that product design may have on the organisation has often been underestimated. Ford and General Motors have found that although design accounts for only 5% of the cost of a car, it determines about 70% of the manufacturing costs. If it is borne in mind that eight out of ten new products ultimately fail in the USA (Welter, 1989), the importance of successful and cost effective product design will not be underestimated. In rapidly changing times, where the needs of customers and the positioning of competitors change continuously, it is a prerequisite that the opinions of the customers and suppliers and as well as employees and management be considered in product design.

Schonberger (1990) identifies six main directives for good product design:

- *Design partnerships:* This refers to the use of extended design–build teams in which a product designer works with suppliers, customers, assemblers and purchasing.
- *Design for operations:* Here the aim is to design products or services that are easy to make or provide. This includes minimising the parts used,

standardising the type of part used, ensuring that parts can perform multiple functions, designing parts that are easy to join and separate and so forth.

- *Design for cost* means that the cost implications of the products or services should already be considered at the design stage. Marketing specifies a cost target based on an expected selling price and the cost of manufacturing the product is monitored as the design of the product progresses. This cost should be compared to the original marketing target on an ongoing basis to assess whether the project is still feasible.
- *Structured product development* concerns the use of mapping techniques so that the development and manufacturing phases of the product can be planned in advance. Planning the design, development and manufacture allows for the early detection of threats and problems.
- *Competitive analysis* is based on a comparison of the organisation's products and services to those of competitors. There are five source of competitive analysis according to Schonberger (1990, p.231): (1) Buy and try out the competitor's product or service, (2) Check with your competitor's customers, (3) Be active in trade associations and speciality groups, (4) Trade data with competitors, or (5) Hire knowledgeable people from outside your firm.
- *Time to market* refers to the competitive advantage that may be gained by a quick design-to-market response. Beating the competitors to the market with an innovative new product allows the organisation to reap larger profits. A substantial reduction in lead time of product design and manufacture may therefore result in the organisation gaining a competitive advantage.

The importance of product design is well established through the method of target costing in Management Accounting. Target costing is a system of profit planning and cost management that is price led, customer focused, designed centred and cross functional (Ansari *et al.*, 1997). Target costs are established by determining the market price and deducting the required profit margin. The target cost analysis is

based on customer requirements. Product design forms the key to identifying and managing product costs, through the elimination of costly parts and by simplifying designs and minimising changes. Crossfunctional teams are responsible for the development of the product. Cost management commences at the early stages of design and development and continues throughout the life cycle of the product. Finally, the value chain of the organisation extends beyond its legal boundaries to include the contributions of suppliers, dealers, recyclers and distributors. This extended view of the enterprise is adopted in target costing to improve the management of costs.

The need exists for measurement of the performance of the design process, not only on a cost basis, but also in terms of time to completion, rate of designing of successful products, number of parts used per product, percentage common versus percentage unique parts, number of subassemblies and other measures that support the design aims and targets of the organisation. The design function can have significant cost implications for a business. Much of the success of the introduction of new products and services depends on product design. On a similar basis the accounting system can apply the principles of efficient product design to its product information. The accounting system design, too, should be based on simplicity, flexibility, multipurpose uses and cost effective implementation.

4.4.4 Manufacturing

The manufacturing process can be used together with the design function to gain competitive advantage in highly competitive market segments by beating competition to the market, or by producing customised or cost effective products and services. These functions can in turn be used as powerful marketing tools.

One of the first new developments aimed at improving the efficiency of the manufacturing process was the introduction of the concept of Just in Time (JIT). Where Western companies tended to focus on optimising inventory policies, Japanese companies viewed inventory as a form of waste that had to be eliminated and as the buffer used to cover up multiple manufacturing problems. Johnson and Kaplan (1991) noted that Japanese companies tried to understand the fundamental

forces that led them to holding inventory in the first place. These forces were then targeted with the aim of systematically removing them. JIT is in essence a production philosophy that results in products being pulled through manufacturing as they are needed. The result of the JIT philosophy is that total quality improves, set-up times of machines are reduced substantially and closer relationships are formed with suppliers to reduce the lead times and improve the quality of material supplies. The layout of machinery in the factory is redesigned to reduce both bottlenecks and manufacturing lead times. JIT also removed waste resulting in substantial cost savings – firstly by substantially reducing the costs of holding inventory, with a concomitant drop in financing costs and secondly by saving factory floor space. Companies also discovered the fundamental truth that inventory hides problems: attempts to reduce inventories, lead to the emergence of a number of other problems, such as quality problems, bottlenecks, co-ordination problems, obsolescence, shrinkage and supplier unreliability (Johnson & Kaplan, 1991).

Technology has also had a substantial impact on the manufacturing process. Organisations using sophisticated computerised equipment find that virtually labour free manufacturing becomes a possibility. Technology could also be used to customise and personalise products. However, Schonberger (1990) makes the point that world class status is not achieved merely by purchasing the latest equipment, for the successful implementation of advanced technology depends mainly on the personnel of the organisation. The danger exists, for example, that the level of technological sophistication and the level of competency of employees may be mismatched (Perrow, 1983). Furthermore, technically advanced machinery may not be used for the correct purposes or at maximum productivity levels. Examples of misuse of sophisticated technologies in the manufacturing processes are found in digital computer production technology machines, robots, computer-aided manufacturing (CAM) and flexible manufacturing systems (FMS). The following is one example of misuse: The purpose of FMS is to manufacture several kinds of parts in low to medium volumes. All the activities in the system (metal cutting, monitoring tool wear, set up, inspection, tool adjustment, etc.) are under precise computer control, similar to a miniature automated factory (Jaikumar, 1986). However US companies used FMS for high volume production of few parts rather than variety production of many different parts at a low cost per unit. The inefficient

use of FMS in US companies is in contrast to the efficient use by Japanese companies, which showed up in a further increase in the competitiveness gap between these companies. The latter companies gained a competitive advantage by being able to produce differentiated, low cost and high quality products.

The introduction of technology together with methods such as JIT also has implications for the information system of organisations. Traditional measures such as individual worker output and machine up-time are no longer appropriate in a JIT or automated environment. The efficiency of the manufacturing process must be measured by more unconventional yardsticks. One of the indicators is lead time, in other words the time taken from the start to the completion of production and delivery to the customer. Other indicators which assess manufacturing efficiency include the number of bottlenecks experienced in production, the average time taken to remove bottlenecks, the length of the set-up time of machines, the number of breakdowns in machines, number of reworked parts, average distance travelled by products in the factory and the average levels of inventory.

Although these indicators are used within the business to monitor progress, they are seldom communicated to stakeholders outside the organisation, unless in the form of a marketing tool. Consequently external users find it almost impossible to assess the manufacturing efficiency of a company from the information supplied in the financial reports.

4.4.5 Employee involvement and empowerment

The shift in the focus of management theory from a closed system, rational perspective to an open system, social perspective, has emphasised the role that people can play in the success of an organisation. It is now recognised in the literature that competitive advantage is gained through the brain power, initiative, resourcefulness and creativity of employees. According to Peters (1991) people must become the primary source of value added, and should not remain merely "a factor of production" to be optimised, minimised and/or eliminated. Rhinesmith (1995) argues that as companies gain a better understanding of the new global world, they learn that people provide the competitive edge while Naisbitt and

Aburdene (1990) predict that the most exciting breakthroughs of the 21st century will occur not because of technology, but because of an expanding concept of what it means to be human.

Organisations should be prepared to expend time and money to recruit the right people. Line staff should dominate the process and the qualities required of new recruits should be clearly specified up front. The potential of existing employees should be unlocked by more training in among others problem-solving ability, strategy, finance, technical aspects of manufacturing and design, marketing and quality improvement. Daniels (1994) contends, however, that training is not sufficient, what is needed is a learning organisation: This is an organisation that promotes learning among its employees – and also an organisation which itself learns from that learning process. She concludes that employees within a learning organisation would be and feel empowered – empowered to take responsibility for their own work area and/or tasks, for their own careers and for personal development.

The involvement of people can be encouraged by forming self-management teams in which people from different functions work together as focused teams. These teams need three commodities to operate successfully, namely information (data, technical knowledge, expertise), resources (funds, material, space, time) and support (endorsement, backing approval, legitimacy, commitment) (Kanter, 1982). A sense of ownership should be created among employees, combined with a total commitment and willingness to participate and take responsibility. Throughout the organisation, people should own and manage their processes with the help from anyone who has the required expertise (Schonberger, 1990). To encourage involvement, the organisation should provide financial incentives as recognition for contributions to innovation, quality, product design, team work and productivity. Employee ownership can be extended by encouraging shareholding in the organisation by means of share incentive schemes and performance bonuses paid in the form of shares.

The accounting information system is not designed to measure the primary resource of organisations, namely people. As a result of this narrow recognition and measurement criteria, the contribution of human resources to businesses are not

recognised in the conventional financial statements. Certain aspects of employee involvement, such as total training costs, training costs per employee, staff turnover, percentage people involved in teams, amount of incentive payments, absenteeism, recruiting success and skills, can be measured quantitatively while other aspects, such as the level of involvement, commitment, cultural differences and continued learning, do not lend themselves to direct quantitative measurement. Quantitative surrogates such as the percentage of people involved in teams could be used as an indication of involvement here. In other instances more qualitative assessments such as opinion surveys or performance assessments could be used.

4.4.6 Global competition and a customer orientation

The development of a global market has profoundly changed the manner in which businesses are managed. Globalisation means that it is now possible to produce a product anywhere, using resources from anywhere, by a company located anywhere, to be sold anywhere (Milton Friedman in Johnson, 1992). As a result, the number of decisions facing management on a day to day basis has risen significantly. Global scanning, in other words searching for and creating opportunities in the global environment, will increasingly become a prime concern of management. As competition is now waged on a global basis, organisations will have to produce products and services of a world standard, be committed to ongoing innovation to attract and create new markets, use technology and employee productivity to supply competitive products and services, and differentiate products and create unique products through brands and trademarks. Even local business cannot escape the impact of worldwide competition when high quality products and services from global corporations are being sold faster, cheaper and more efficiently in local markets. Allen (1994) maintains that alongside the rapid pace of change, globalisation has occurred to such an extent that few organisations can be thought of in purely local (including national) terms. He points out that a firm does not have to be import or export to be exposed to the risks arising from currency fluctuations, it requires just one competitor, existing or potential, who is based abroad.

World competition and marketing have made customers more selective, more informed and more demanding. According to Schonberger (1990) customers have

come to demand variety and change. Consequently, the management of organisations are striving to increase the attractiveness of their products and services by introducing different types, designs, colours, models, brands, labels and marketing. At the same time product life is declining rapidly, requiring many organisations to become product innovators rather than remaining low cost producers. For these organisations the key to success is the continual introduction of high performance products, timely delivery, customised or niche products, and the flexibility to adapt to customer preferences as they gain experience with new products (Johnson & Kaplan, 1991).

Prices of products and services are being determined by the value to the customer and less by the actual cost of production to an increasing extent. Foster (1986) states that yield is a function of the value of a particular product to a customer and the degree to which its manufacturer can protect that value from competitive duplication. It becomes increasingly important to measure the margins on products and manage the costs of production. If advanced technology allows a company to make the product at a lower cost and recover the cost of the investment in capital, it will make more money than its competitor and yet succeed in selling the product at a lower price. On the other hand, the company can enhance the value of its products by adding product attributes for which customers will be willing to pay more (Foster, 1986). In the past the company that knew how to standardise most effectively was able to beat its competitors, but in the future the company that knows how to customise effectively may prove to be the victor (Toffler, 1985).

Current accounting practice is still driven by internal costs and cost cutting practices. It has not yet adopted the customer-oriented approach necessary for companies to survive global competition. Some indicators such as the market share in different market segments, markets entered and left during the period under review, the strategic aim of the organisation in different segments either as a niche, innovator or a low cost producer, a geographical analysis of sales, the amount spent on advertising, new advertising campaigns launched and the level of investment in intangibles such as brands, patents and trademarks, may be developed to monitor the competitive position of the company. This type of information is often not available to users of financial information outside the organisation.

4.4.7 Management style and leadership

There are two types of executives in business – incremental executives and radical executives (Toffler, 1985, p.23). An incremental executive assumes that continuity exists, formulates straight-line strategies and defines problems cleanly, treating each as it comes along, more or less in isolation from others. This type of executive is good at logical solutions and tends to use the well-tried methods of the past to solve problems. A radical executive recognises the growing importance of discontinuity, tends to define problems less neatly, and rather sees them in relation to the each other. This executive is open to “unthinkable solutions”, carefully examines mind sets and preconceived mental models, and does not seek solutions in rigorous plans, diagrams and budgets. Senge (1990) suggests that this executive sees interrelationships rather than linear cause-and-effect chains and processes of change rather than snapshots. The radical executive acts as a facilitator and supporter of crossfunctional teams.

The level of stability or turbulence in the environment determines which type of executive skills are the most needed in particular circumstances. The management style should match the demands of the times. Therefore the style and skills of the radical executive are best suited times of rapid change and turbulence, while times of stability are suited to the talents and the style of the incremental executive. A mismatch between the management style and the state of the environment can have catastrophic results for the business.

A shift is discernible in the literature away from management to leadership. Management, in this context, is viewed as ruling and controlling employees, whereas leadership is viewed as enabling and helping others to perform their work by removing barriers and constraints. Allen (1994) confirms that command and control have been replaced by leadership and enabling skills. Leadership can be defined as the art or process of influencing people so that they will strive willingly and enthusiastically towards the achievement of organisational goals (Koontz *et al.*, 1982, p.423). Jago (1982, p.314) suggests that leadership is both a process and a property: It is a process in the sense that it uses non-coercive influence to direct and

co-ordinate the activities of [University of Portofino](#) members of an organised group towards the accomplishment of group activities. It is a property in the sense that leadership is the set of qualities or characteristics attributed to those who are perceived to employ such influence successfully. Bennis (in Mc Elroy, 1982, p.413) sums up the diverging definitions of leadership that are found throughout the literature as follows:

“Probably more has been written and less known about leadership than any other topic in the behavioural sciences.”

The accounting system does not recognise, nor attempt to measure an elusive quality such as leadership. Yet leadership or the absence thereof directly influences the performance and success of the organisation. It is difficult to measure or assess the level and extent of leadership within a particular organisation, even more so from the perspective of an external user of the financial statements. However, some indirect or surrogate indicators may be used to obtain some idea of the level of leadership and type of management style in the company, such as a description of the age, qualifications, years with the company, track record, and interests of top management. The vision and mission statements as well as a discussion and overview of management on the progress of the company during the past year, and its prospects for the future, could also serve as qualitative measures.

4.4.8 Vision and strategy [University of Pretoria.etd](#)

A vision and core values are widely identified in the literature as being essential elements of a successful business in a volatile environment.

The term “vision” can be divided into three concepts:

- The future state or destination of the business – a pattern of what the business is going to be at some point in the long-term future;
- The driver or motivator of business behaviour – a pattern of becoming;
- The business philosophy, culture or shared belief about what the purpose of the business: what it is, why it so, what makes it successful, and how people in it should behave – thus a pattern of being (Stacey, 1992a).

A vision should be unique yet specific enough to give direction to the decision and actions within the organisation. It should on the other hand be general enough to allow for radical new and bold decisions in a rapidly changing environment. The central idea or core of the vision will usually remain fairly stable. Growth to the vision will normally take place at the edges, by means of the introduction of minor changes, some shifts in focus, the introduction of new ideas and the abandonment of the old. A vision should never inhibit the ability of the organisation to respond and adapt to change in the environment.

The vision of the organisation directs the decision making process in an organisation. Ansoff (1988) identifies three categories of decisions in an organisation, namely strategic, administrative and operating decisions. The aim of operating decisions is to maximise the efficient use and conversion of resources and includes decisions on aspects such as resource allocation, scheduling and supervision of performance. Administrative decisions are concerned with structuring the resources of the firm in such a manner that it will maximise performance potential and includes decisions on the structuring of authority, work flows, information flows and location of facilities. Strategic decisions are primarily concerned with external rather than internal problems of the firm. Hussey (1976) defines strategy as an evaluation of the various alternatives open to the company and a selection of what appears to be the optimum

course or courses of action to take. According to Christensen, Andrews & Bowen (1973), strategy is the pattern of objectives, purposes or goals and major policies and plans for achieving these goals, stated in such a way as to define the business, or future business of the company.

Strategy concerns with the relationship between the enterprise and its environment (Katz, 1970). The time and attention required by management on each of the types of decisions are determined largely by the business environment. If demand in the firm's markets is growing, technology is stable and customer demands and preferences change slowly, a firm can remain successful by focusing its attention on the operating activities and letting its products, markets and competitive strategies evolve slowly and incrementally. If, however, the environment becomes turbulent and changeable, and/or demand approaches saturation, continued success and even survival are possible only if management gives a high priority to the firm's strategic activity (Ansoff, 1988). This explains why strategy has become increasingly important in a turbulent business environment.

To enable users of accounting information to judge the performance of an organisation in terms of its vision and strategy, strategic expectations must be formulated, described and disclosed and the vision be stated. The "soft" nature of information on the vision and strategy of the organisation makes measurement difficult and its assessment will probably have a qualitative and descriptive rather than a quantitative nature.

The rising importance attached to strategy as a result of turbulence in the environment has a direct influence on the accounting information system. The increasing demands of users for information to support strategic decisions, requires a shift in focus regarding the accounting system. While Accounting had an internal focus and collected information mainly from within the organisation in the past, it will increasingly have to focus on information gathered from external sources, such as from customers, suppliers and markets. Similarly, where Accounting focused on supporting operating and to a lesser extent administrative decisions in the past, information will to a greater extent have to support strategic decisions.

4.4.9 Flexible organisational structure University of Pretoria.etd

According to Chandler (1962) structure follows strategy. Organisational structure should fit the vision and strategy of the organisation. Both are influenced to a large extent by the state of the environment in which the business operates. Changes in the environment of the firm leads to changes in its strategy, which in return generates changes to the internal structure of the corporation (Hedlund & Rolander, 1990). However, Adizes (1995) argues that while structure should in theory follow strategy, strategy in reality follows structure. He ascribes this to the political nature of organisations, and argues that if the power structure is known, the strategy can be predicted. People follow their own self-interest and strategy is the manifestation of those self-interests.

In the past the organisational structure could be depicted in terms of the formally structured, hierarchical charts and boxes approach or “military model”. This provided a suitable structure for a management philosophy based on a closed system and rational approach. This approach worked well in a stable environment where events repeated themselves and solutions of the past could successfully be applied to present and future problems. A different organisational structure is however needed if the organisation is viewed as an open system and people are recognised as social beings with strengths, weaknesses, contradictions, irrationalities and limitations. An informal, organic enterprise structure with a flat hierarchy, loose job descriptions, self-focusing teams, and crossfunctional involvement meets the requirements of an organisation that needs to respond almost instantaneously to a turbulent environment. Such an informal structure of the company will be flexible in that it will evolve and change continuously in response to the environment. Indeed, Drucker (1988) compares this organisational structure to a large symphony orchestra. Unfortunately, in most companies the existing organisation structures are still designed for the repetitive production of a few basic kinds of decisions (Toffler, 1985). This mismatch between a “charts and boxes organisation” and a volatile environment results in an organisation that is inflexible and slow to adapt and respond to changes in the environment.

The accounting function too, is influenced by the changing organisational structure. This implies that the manner in which the accounting function is structured in firms as well as the collection and distribution channels of accounting information will have to change. In an informal structure the accountant will become a member of crossfunctional teams and the prevailing mainly centralised accounting function will become increasingly decentralised.

4.5 Summary

In response to the rapidly changing environment, business managers have had to change the structure, culture and strategy of their organisations. Organisations are moving from an era dominated by incremental change to one of discontinuous change, where the focus will be on changing the fundamentals of companies through recreation and reorientation. These *fundamental changes* are being promoted by a profusion of literature on how to manage a business in a changing environment (see Peters, 1991; Peters & Waterman, 1982; Schonberger, 1990; Kanter, 1982; Foster, 1986 and Du Pree, 1989, to name but a few). The central idea of the proposed organisational changes is that change should be managed through a *process* of fundamental and continuous improvement and renewal instead of merely applying *ad hoc* reorganisation and restructuring. Change has to be integrated into the corporate culture.

The following areas of fundamental organisational change are mentioned in the surveyed literature:

- Achievement of **total quality**, not only in respect of goods and services but also regarding time, place, equipment, processes, people, safety, information, measurement and the environment.
- Continuous **innovation** throughout the organisation, with all employees being committed to and involved in innovation.

- Effective use of the **latest technology** to improve the organisation's competitive advantage and remain ahead of competitors – the attacker's advantage (Foster, 1986).
- Continuous **elimination of waste** through product design and manufacturing, in respect of materials, time, space, labour and costs.
- Involvement, training and **empowerment of employees**, and the recognition that they are the primary source of a competitive advantage.
- Creation of a **customer-oriented** culture in which satisfying the needs of existing and potential customers is the primary concern of the organisation (Schonberger, 1990). This does not only apply to products and services, but also to information.
- Changing the management style from an emphasis on command and control to an emphasis on **leadership**, with leadership being viewed as enabling and helping others to perform their work by removing barriers and constraints.
- Creation of a **vision** to direct decisions and actions in the organisation and increasing the emphasis on a **strategy** that is aimed at positioning the organisation optimally within its environment.
- Changing the organisational **structure**, from the mechanistic charts and boxes of command reminiscent of the military, towards an informal, organic enterprise with a flat hierarchy, self-focusing teams and involvement of people across functions.

These prescriptions and directives in the literature are, in effect, signposts for organisations to become more flexible (Volberda, 1998). More and more, managers are coming to recognise that flexibility is the key to survival in a volatile environment. Some authors view the developments in Management Theory as a paradigm shift from a mechanistic view of organisations (closed system approach) to gestalt thinking (open system approach), and from a rational view in which clear aims and objectives for the organisation are deemed to exist, to a social view, in which objectives are based on value choices rather than on mechanical choices (Scott, 1978; Kanter, 1982).

The changes that are occurring in organisations impact directly on the information systems and in particular on the accounting systems of those organisations

(Thompson, 1995). Indeed, many of the prescriptions for managing change in business organisations are also applicable to the accounting system. The accounting information system should not only measure change, but should contribute to anticipating and supporting change as well as reporting on it and the strategies adopted by the organisation in respect thereof. The momentum for changing and adapting the accounting system should be initiated not only by the users of accounting information, but first and foremost by the accounting profession.

Chapter 5 Accounting in a changing environment

“Not only is accounting and disclosure increasingly at risk of failing to satisfy its promise to society, but I fear that, unless we begin to take actions to ensure its future utility, accounting and disclosure may become a detriment - a deterrent - to worthwhile business innovation.”
(Wallman, 1995)

5.1 Introduction

The pace and nature of change in the environment has had a profound influence on business organisations and the way in which they are managed. Some authors in Management Theory even suggest that a paradigm shift has taken place in the way in which companies are managed (Scott, 1978; Kanter, 1982). Accounting, as the language of business, and its accounting information system, as a subsystem of the business organisation, have also been affected by these changes. This chapter suggests that as a result of these changes, Accounting is confronted by a number of challenges in adapting to the new demands of its users. However, a review of literature indicates that Accounting has regrettably been very slow in adapting to its changed circumstances. This apparent inability of Accounting to adapt puts its future utility and relevance at risk.

Chapter 5 commences by identifying the impact of change on Accounting and its product, accounting information. It identifies the challenges that confront Accounting and the accounting system in adapting to its environment. The 16 challenges that should be addressed are briefly discussed. Three aspects acting as constraints to change in the traditional accounting model are then identified. The discussion of the impact of the changing environment on Accounting is concluded with a brief summary of the *status quo* of Accounting and the changes required to the discipline and its information system in response to the changes in its task and general environment.

5.2 The impact of a changing environment

The impact of change on the enterprise has formed the basis of a large portion of the recent literature on Management Science, strategy, operational tactics and Organisational Theory. Lapsley and Pettigrew (1994) confirm that change and its implications are a general theme in management and organisational behaviour literature. Many ideas for handling change in a business environment which were discussed in the previous chapter, are practised by companies throughout the world, while those companies who have not done so, find it difficult to survive (Peters & Waterman, 1982; Kanter, 1982). The accounting profession is aware of these changes in the environment and the impact it has on businesses. The American Institute of Certified Public Accountants (1994a) states, for example, that increased competition and rapid advances in technology are resulting in dramatic changes. In an effort to survive and compete, companies are rapidly changing everything: The way they are organised and managed, the way they do work and develop new products, the way they manage risks, and their relationships with other organisations. Successful companies are those that focus on the customer, eliminate low value activity, decentralise decision making, reduce lead times and form new alliances with suppliers, customers and competitors. Although accountants on the whole are aware of change in the business environment, the accounting discipline and information systems have not kept abreast of these changes. In the United States, a SEC Commissioner (FASB, 1996) confirmed that reporting is not keeping pace with the accelerating changes in the business world and it is at risk of diminishing its utility to a serious degree.

An insight into the ways and means of bringing accounting systems up to date is only possible if one understands why they are poorly adapted to the needs of today's competitive environment (Turney & Anderson, 1989). The accounting system was originally developed for trading enterprises and was extended during the Industrial Revolution to accommodate manufacturing enterprises (Association for Investment Management and Research, AIMR, 1993, p.27). Because the accounting system was not designed for service- and informationbased enterprises, which are currently the most rapid growing section of industry, it cannot report effectively on them

(FASB, 1996). Kaplan (1983) notes that the traditional accounting model is based on the mass production of a mature product that has known characteristics and on the assumption of stable technology. Such assumptions are clearly no longer applicable in an environment characterised by customised products, innovation, continuous improvement, rapid introduction of new products and services, short product life and an exponential growth in technology. As a result of its historical development as well as the education and training of accountants, the accounting information system and accountants are poorly equipped to deal with the new demands of their environment (Beaver, 1992). Furthermore, the information system is poorly positioned to deal with the changing needs of its users, as its structure tends to make it inflexible. The latter stems from a historical approach in which Accounting was viewed as a closed system with limited and structured interaction with its environment.

Schonberger (1990) noted that in leading companies Accounting generally lags behind the developments in quality, design, purchasing and changing roles of people. Johnson and Kaplan (1991) contend that the *intellectual basis* of accounting information systems in most of the organisations has been made obsolete by contemporary trends in global competition, by a revolution in the organisation, manufacturing technology and by deregulation. Despite these criticisms, the issue of change and its implications for Accounting is still addressed relatively infrequently in mainstream accounting literature (Lapsley & Pettigrew, 1994).

Because of its inability to respond to change, Accounting has been severely criticised in recent years. David Allen (1994, p.1) for example says the following about the financial statements:

“A balance sheet endorsed by a reputable firm of auditors provides no indication of the future viability of the enterprise. The traditional accounting model, with its focus on realised gains, tangible assets and capital maintenance is not only inappropriate at a strategic level, but dangerously misleading.”

Some years before this Peters (1991) contended that the traditional measurements were misleading, and that the accounting reports reveal only some aspects of economic reality. Hope and Hope (1995) are even more harsh in their condemnation

of the accounting information system. They suggest that accounting systems not only lack relevance but that it also provide managers with misleading signals and thus invite the prospect of wrong decisions, which destroy jobs and stifle innovation. Wrong decisions by management affect the position of the stakeholders of the company as well as society through lost opportunities, lost jobs, inefficient use of scarce resources, and the poor allocation of wealth. The dissemination of misleading information on the performance, position and competitiveness of organisations also results in uninformed and inappropriate decisions being made by external stakeholders, which eventually results in the allocation of scarce resources such as capital, not being optimised.

Accounting has also been criticised in publications for failing to reflect reality by not providing information that is relevant, timely and useful for decision making; and for being inflexible and unable to adapt (see Hakanson, 1978; Lee, 1987; Johnson, 1992; Lapsley & Pettigrew, 1994; Turney & Anderson, 1989). This continuing inability of Accounting to keep pace with the changes in the business world will ultimately affect its utility and relevance. According to Lee (1995) the inability to accommodate change is the result of traditional modes of thought passed on from one generation of accountants to the next.

The FASB has recognised that Accounting is in danger of becoming obsolete. In the *Status Report* (FASB, 1996) it has identified the enhancement of the financial reporting model as a tool for decision making in a rapidly changing economic and technological environment as one of its strategic foci for the 21st century. In addressing financial reporting (the product of Accounting) the FASB is only considering part of the problem, as the general problem arises from the inability of accountants, the discipline as a whole and its information system to adapt to the changing demands of the users of business information. Criticisms of Accounting should be viewed as an incentive for the discipline to grow, become more client centred and strive for service excellence. This requires a continual process of renewal, improvement and feedback. To provide momentum for this process, the criticisms need to be viewed as opportunities for continuous improvement and challenges confronting the study field.

When addressing this problem, the changing perspectives in the environment of Accounting should be considered. In the Management Theory, for example, there has been a paradigm shift in that the organisation is no longer viewed as a closed system using a rational approach with clearly identifiable goals and aims, but as an open system in terms of a social approach (Scott, 1978). The accounting information system is a subsystem of the organisation and its underlying perspectives should be closely aligned with those of the organisation. However, Accounting has remained essentially an internally focused, closed system with limited interaction with its environment which follows a rational, mechanical approach. In order to align Accounting with the perspectives adopted in the business organisation, it should be viewed as an open system which

- interacts freely with its environment;
- repositions itself continuously through constant feedback;
- focuses on the environment, identifying and anticipating and adapting to change;
- is flexible enough to respond to the changing demands of its users; and
- is able to initiate, measure, and support change to ensure the success of the business in an increasingly competitive world.

As a possible approach to increasing the flexibility of Accounting, Wallman (1995) suggests firstly that *analytical systems* for thinking about and anticipating changes in the business world should be developed by accountants and secondly, that *mechanisms and structures* should be developed which will enable Accounting and accountants to respond appropriately to change. Such changes in perspective may result in far more radical changes than those envisaged in the literature (see AIMR, 1993; Johnson, 1992).

Criticisms of Accounting are summarised in figure 5.1, but it does not purport to be a comprehensive list.

Figure 5.1 : Criticisms levelled at Accounting

Criticism	Author
Inflexible	Lapsley and Pettigrew Turney and Anderson

Reductionistic	University of Haskoning
Misleading information	Allen Hope and Hope Peters
Irrelevant, information	FASB
Stifling to innovation	Lee Wallman
Inappropriate assumptions	Kaplan
Slow in adapting to changes	Schonberger Peters Johnson and Kaplan
Inability of accountants to change	Allen Lee

Source: Own observation.

Some of these required changes are addressed as challenges confronting Accounting in the next section. At the end of each section, the challenge under discussion is summarised and highlighted.

Although the different challenges are discussed individually, they should be viewed from a holistic perspective, because the power of the potential improvement lies in the cohesion of the changes rather than in the individual items. A segmentalistic logic (Peters & Waterman, 1982) to improvements will result in an *ad hoc* approach. In a holistic approach the complexity, interdependence and relationships within Accounting is recognised and the impact of improvement on the discipline as a whole considered.

5.3 The challenges confronting Accounting

Accountants, managers and other users of accounting information cannot afford to ignore the significant changes that have taken place in the business organisation, business environment and broader society. Puxty (1993) stresses that Accounting is not merely a collection of techniques, but that it has a significant impact on society at large. So too, society impacts on Accounting and accountants. Accountants are seen as the gatekeepers of financial markets, who are responsible for the quality and integrity of information so that

- capital markets are efficient;
- the cost of capital is low;
- the standard of living is high;
- the investment risk is low; and
- resources are allocated efficiently (Wallman, 1995).

Another role of Accounting and accountants is to identify inequities and ensure the fair and equitable distribution of resources (Gouws, 1996). Accounting restores equity by ensuring a correct and accurate measurement and reporting of performance and the corresponding rewards (Belkaoui, 1980, p.90). A failure to respond to such expectations may cause the accounting discipline to lose its credibility, usefulness and relevance, and the accounting profession to lose its standing in society.

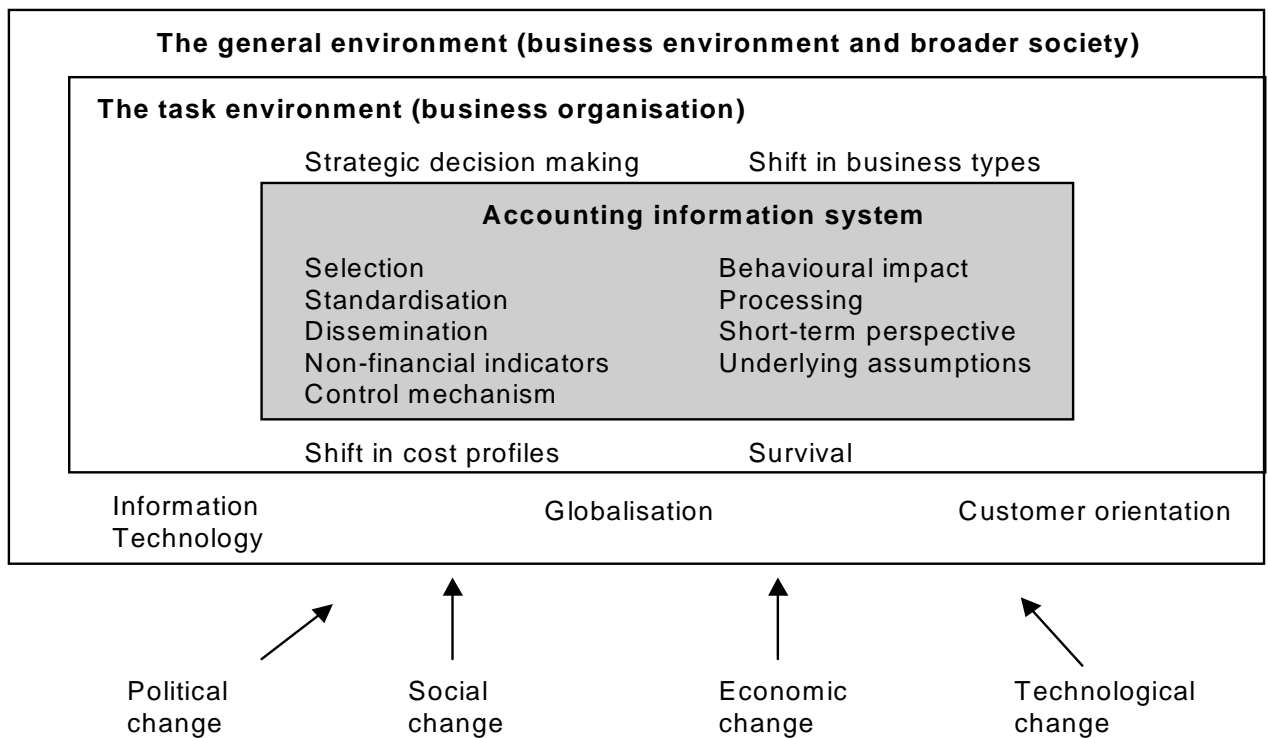
The changing environment has confronted Accounting with a number of challenges that should be recognised, accepted and addressed promptly in order to reverse the already declining trend in its usefulness and relevance. These challenges may also be used as

- criteria to assess the contribution made by research, improvements or innovations in Accounting;
- a means of focusing attention on those areas of Accounting that require change; and
- a point of departure for studying the interrelationship between Accounting and its environment.

As was mentioned in chapter 3, society has been subjected to political, social, economic and technological change. These changes resulted in globalisation, the rise of the informed and selective customers and the development of information technology. This represents the first level of challenges. Within the business organisation, change is apparent in the shift in business types and cost profiles as well as in the increase in strategic decision making and the greater emphasis on

survival. These concern the **second level of challenges** that were discussed in chapter 4. In the accounting information system, areas requiring change include the selection of data and the processing, dissemination and standardisation of information, its use as a control mechanism, the short-term perspective created by accounting information, the behavioural impact of such information, and the assumptions underlying the discipline. These represent the third level of challenges. This systems approach which is used as the basis for identifying these challenges is illustrated in figure 5.2.

Figure 5.2: Challenges confronting Accounting



Source: Own interpretation.

These categories of challenges emanate from the author's interpretation of the literature. They do not purport to be exhaustive or mutually exclusive and may differ from the perspectives of other authors.

5.3.1 Globalisation

In recent decades there has been an astonishing disappearance of geographical barriers, both physical and psychological. The concomitant globalisation of markets will probably continue until almost all barriers have disappeared (AIMR, 1993, p.22). Companies are becoming increasingly multinational, and so have the product markets. Even financial markets have not escaped the trend. As a result, companies can raise capital anywhere, sell to markets anywhere and base their operations anywhere.

With globalisation has come an escalation of competition among businesses, combined with increased deregulation. To survive in this highly competitive environment, organisations are altering the way in which they conduct their business. They have to become customer oriented and lean, efficient and innovative. Globalisation does not only affect an organisation and its management, but should also influence the accounting system. The latter should support the raising of capital anywhere in the world, obtaining of listings on foreign exchanges, co-ordination of world-wide operations and the assessment of multinational performances as well as the measurement of productivity, continuous innovation and responsiveness to change.

Acting as constraints to the potentially global role of Accounting are the cultures, languages, practices and different interpretations of theory, laws, ethics and aims of the businesses in different countries. Notwithstanding these constraints, the AIMR (1993) suggests that harmonised accounting methods should be adopted. In this respect considerable work has already been done by the IASC and EEC. The harmonisation of accounting standards should result in the world-wide acceptance of standards which should be followed by the acceptance of a similar set of auditing standards. Accounting has, however, not been developed sufficiently to support the complex areas of reporting and decision making that are encountered in multinational enterprises. The management of these enterprises should consider aspects such as legislation, tax regimes, labour practices, currency fluctuations, investment incentives, changes in consumer patterns, political stability and trade restrictions from a global perspective.

The challenge confronting Accounting is that it should become a universally understandable language with the aim of even-handed distribution of information to enable global resources to be allocated efficiently. It should be able to report on the performance of and support decision making within complex multinational business groups in which aspects such as the location of operations, position in markets, taxation, listing on stock exchanges and volatility of currencies are of prime importance.

5.3.2 A customer - oriented perspective

One of the keys to success in the new business environment is recognition of the dominant role of the customer. A deficiency of the traditional accounting information system is that it is not customer oriented with regard to a number of aspects. Firstly, accounting systems provide almost no information about customers other than revenue data. Secondly, they focus on internal issues rather than on the needs of customers for products or services. Thirdly, the accounting system itself is not sufficiently customer focused.

Hope and Hope (1995) present evidence that huge amounts of work in every type of organisation provide no added value to the customer. Ernst & Young (1995) found that only about 20% of administrative processes add value for the customer. Yet the accounting system is not able to highlight such waste, and instead disguises it. It raises the ethical question of whether the customer should be expected to pay for such inefficiencies in cases where the price of the product or service is based on cost. Accounting information should support the business in becoming and remaining customer oriented by supplying more information regarding relationships with customers, exposure of waste and costs that fail to add value for customers.

Accountants should also align their product, information, in a similar way that successful businesses align their products and services to the needs of their customers (AICPA, 1994a). If Accounting becomes customer driven its output, namely business information, will be focused on meeting the changing needs of its users. The selection of data and its processing will therefore be determined by the required output.

The challenge confronting accountants and Accounting is to become more customer oriented, shifting the focus of attention towards the needs of customers for products, services and information.

5.3.3 Information Technology

Computing and related technologies have had, and will continue to have, a profound impact on the way in which information systems gather, process and distribute information within organisations. These technologies also affect the non-information systems that support business functions, such as design, manufacturing and distribution. Kaplan (1983) suggests that while Accounting cannot play the primary role in initiating or implementing technological innovations and organisational change, the accounting system should provide incentives for improving manufacturing performance and measurements to evaluate progress towards this goal. For flexible manufacturing systems, Jaikumar (1986) proposes indicators of performance such as number of unattended operations, number of machine tools, utilisation rate of shifts and parts produced by the system. This role which is envisaged for Accounting is not limited to manufacturing, but applies to all functions in the organisation where technology is in use.

The technologies also affect the accounting information system itself. Unfortunately, new technology has been used in the latter instance merely to speed up old methods, in other word to crunch conventional numbers faster (Drucker, 1988). Accounting software programs are often based on the dualistic convention of debits and credits, a method originally developed for manual recordkeeping. The dual accounting convention could be replaced with a storage and retrieval system more suited to the computer environment. Ward (1992) suggests that the additional benefits of selectivity, analysis, prediction, accuracy and retrieval on demand should be investigated. The Institute of Chartered Accountants of Scotland (1988) notes that the full corporate report could be made available to users on an electronic distribution network at very little cost. Technology can also be used to create greater flexibility in the accounting information system, thus making it better suited to the changing demands for information.

The challenge confronting software developers, accounting practitioners and accounting researchers is to develop information systems which utilise fully the potential of new technology to bring about an efficient and accurate recording, processing and reporting system on the performance of organisations. The accounting system should utilise technology for more purposes than merely the processing of large volumes of conventional data. The appropriate use of technology should result in a major shift of emphasis from the gathering and processing of information to the interpretation, utilisation and dissemination thereof.

5.3.4 A shift in business types

A shift is taking place in the nature of business as the second wave, industrialisation, is being replaced by the third wave, information technology (Toffler, 1994). The number of mercantile and manufacturing firms is declining and information and service-based firms are escalating. Knowledge has changed from being a minor to a major factor of production.

The traditional accounting model was originally developed to report on mercantile enterprises. Later it was modified through cost accounting to accommodate manufacturing enterprises. This modification was however less than perfect and the result was that additional information which, was required in decision making, was generated outside the conventional accounting system (AIMR, 1993, p.27). The traditional accounting model is even more unsuitable for reporting on information and service-based companies. The FASB (1996) recognises that a failure of the accounting model is that it does not provide enough insight into information and service-based enterprises. The major factors of production of these companies, namely human resources, knowledge, information and intangible assets, are not recognised or are written off immediately in the accounting system. Even in trading and manufacturing companies intangible assets are becoming important sources of competitive advantage. The very investments which provide companies with competitive advantage in conditions of rapid change such as research, development, marketing, training and design are the ones written off in the accounting model as intangible (Allen, 1994).

The challenge confronting accounting researchers is to develop a system for the gathering and processing of information that is more suited to reporting on information age companies and those factors of production that will provide them with competitive advantage. Such a system should still accommodate the need for information with which to compare investment opportunities of disparate nature (AIMR 1993).

5.3.5 A shift in cost profiles

Shifts in the nature of businesses, as well as new business approaches, have caused major changes in the cost structures of businesses, too. The amounts invested in inventory and labour have declined steadily with the introduction of business innovations such as JIT and automation. Shifts from manufacturing to service and information-based companies and shorter lead times of products have contributed further to the decline in the importance of inventory.

The labour cost of many manufacturing concerns has also dropped steadily. Schonberger (1990) notes that direct labour accounts for only 15% of product cost in manufacturing, down from over 50% only 100 years ago. The nature of the labour has changed from direct costs to indirect costs, and the profile of the labour force has shifted from blue collar to white collar employees.

Overheads has increased substantially and has moved from variable costs to fixed costs. One of the factors contributing to the increase in fixed overheads is the rising investment in sophisticated technology to increase productivity and to facilitate small runs of customised products. Other increases in overhead cost result from the increased attention being paid to planning, training and design and innovation of products and services. Schonberger (1990) notes that overhead costs are often three, four even eight times greater than direct labour costs. Nonetheless, several companies continue to allocate overheads on the basis of direct labour hours and keep meticulous records of dwindling inventory.

A few innovations, such as cost drivers, activity-based costing and target costing, have been introduced, but further research is required in this area of Accounting (Johnson, 1992, p.141). Accountants should assist in introducing and refining new cost allocation techniques in businesses so as to recognise the shifts in the cost structures of information age companies. Perspectives on the nature of costs are changing, too. Costs are now viewed as part of the value chain and should be incurred to contribute towards the creation of value for the enterprise. Costs are furthermore viewed in context instead of in isolation. When costs are incurred which do not create value, they by implication contribute towards the destruction of value. This new perspective on costs helps to highlight and eliminate costs that add no value to the organisation.

The challenge confronting accountants and other internal users of accounting information is to recognise and accommodate the changes that have been taken place in the cost structures of organisations and to develop innovative and cost-effective means of recording, allocating and reporting on such costs in organisations.

5.3.6 A strategic decision-making focus

In highly competitive global markets, managers are obliged to devote an increasing proportion of their time to strategic decision making, and must of necessity leave more and more operating and administrative decisions to employees (Ansoff, 1988). The managerial focus has shifted from mainly inward to outward focusing decisions, or stated differently, from a closed to an open system approach. In the past, accounting recognised and measured information that was mainly related to operating, and to a lesser extent, administrative decisions. This has been because the accounting information system has remained essentially a closed system which focused on the internal affairs of a business organisation. The demand is changing, however, towards more information that will assist in strategic decision making.

Although some work has been done in the field of strategic decision making with the development of the field of Strategic Management Accounting, the current accounting system is still not geared to support strategic decision making (Allen, 1994, p.11). Strategic Management Accounting has been developed in response to

the pressure for change from managers in the private sector. It provides and analyses financial information on a firm's products, markets, and competitor's costs and cost structures and monitors of the enterprise's strategies and those of its competitors in these markets over a number of periods (Bromwich, 1990). A distinctive aspect of this approach to management accounting is the changing role of the accountant. Here the accountant is depicted as fulfilling a role which is not restricted to only *internal* accounting, but in which he/she takes note of, and measures, the impact of significant external events and reports on these to management within the organisation (Lapsley & Pettigrew, 1994).

Information on strategies themselves and the achievement of these strategies is also useful to other stakeholders of the company. The AIMR (1993, p.85) comments that if financial analysts are to make sound judgements and draw rational conclusions, they must judge the performance of individual business enterprises, and performance appraisal is largely a matter of evaluating how well the management of an enterprise has succeeded in achieving its goals. The type of information, with predictive value, provided by management should describe among others their strategies, plans and expectations. Information that has feedback value should be used to report on the results in a manner that is consistent with the strategies and goals of the organisation and the management. Hope and Hope (1995) note that there is increasing recognition that financial performance can be improved by paying closer attention to measures which relate to strategic targets.

The challenge confronting accounting researchers, accountants and other users of accounting information is to develop an information system that will focus on the external environment and competitors and will have predictive value. Such a system should support the organisation's strategy, assist in the choice of new strategies and report to both internal and external users on their success.

5.3.7 Survival as a key objective

In the past, when the business environment was stable and fairly predictable, the main aim of business was to maximise profits and more recently, to create shareholders' wealth. Although it is unlikely that these entrenched beliefs will be

displaced, the focus has of necessity shifted to survival as one of the aims of the organisation. This is understandable in view of the fact that the unstable environment is increasingly threatening the survival of business organisations.

The traditional accounting model emphasises the maximisation of profit by supplying an income statement in which profitability is measured on a periodic basis. In order to assess shareholder wealth, the value-added statement together with other sophisticated indicators such as economic value added and shareholders value added have been developed (Stern, 1993 and 1996). In contrast, information on survival remains fairly rudimentary, often limited to a few simple solvency and liquidity ratios (Heath, 1978).

Management originally identified the shareholder as the main user to whom information is communicated and whom will be most interested in the survival capacity to the organisation. The extension of the user base to include other users groups, together with an increased awareness of the social responsibility, have now broadened the responsibility of management. The impact of profitability, wealth and survival on other stakeholders now also has to be considered. The responsibility of management for the survival of the organisation thus extends not only to shareholders but to other stakeholders as well.

One of the underlying assumptions of the accounting model is that of a going concern, that is, the assumption that an enterprise will continue operating for the foreseeable future. It is apparent that this assumption is increasingly threatened by an unstable environment. Senge (1990, p.17) finds that few large corporations live even half as long as a human being and supports this statement by the fact that by 1983, one third of the firms listed in the *Fortune 500* of 1970 had vanished. Flexibility is a tool which can be used by management to improve the survival potential of their companies. Flexible companies are more likely to survive in unstable periods than inflexible companies. Volberda (1998) considers flexibility as an essential organisational property for survival in unstable conditions.

The challenge confronting accountants, the auditing profession and other users of accounting information is to identify those aspects that are crucial to the survival of

an organisation in the information age and to develop new and reliable indicators that can be used to assess the survival potential of organisations. The indicators should include qualitative measures of quality, management, employees, research and development, innovation, new markets entered and new products introduced.

5.3.8 Non-financial indicators

Belkaoui (1981, p.222) observed that conventional accounting is characterised primarily by (1) the use of historical cost as the attribute of the elements of financial statements, (2) the assumption of a stable monetary unit, (3) the matching principle and (4) the realisation principle. In particular, the practice of measuring everything in terms of monetary units has tended to blind the accountant to the potential of non-financial measures. These include product quality, customer satisfaction, order lead time, factory flexibility, the time it takes to launch a new product and the accumulation of skills by the labour force (Peters, 1991, p.589). These factors are gaining in importance as the drivers of corporate success. Morgan and Willmott (1993) remark on the tendency of accountants to render everything in monetary terms, irrespective of whether the exercise makes sense or not, stating that although the end product may make things more intelligible to accountants, they make them generally less intelligible to everyone else.

The demand for non-financial information on businesses is increasing as users are recognising that it is more important to measure and report on a variety of non-financial indicators, than attempt to measure monthly or quarterly profits (Johnson & Kaplan, 1991). Non-financial indicators can be measured in time, number of shifts, units, weights, number of follow up actions, telephone calls, contact hours and of course, qualitative descriptions. The Chartered Institute of Management Accountants (1997) acknowledges that Accounting should not be limited to monetary values only.

Although some research has been done on the development of non-financial indicators (see Kaplan & Norton, 1993; Turney & Anderson, 1989), these measures have not yet permeated accounting practice. The introduction of information on the flexibility of businesses will require the increasing development and introduction of a greater number of non-financial indicators.

The challenge confronting accountants and other users of accounting information in organisations is to develop, utilise and report on a variety of non-financial operating indicators. According to Castelano, Roehm and Hughes (1995) this need to move towards a greater use of operational versus financial measures of performance, will require a paradigm shift in Accounting.

5.3.9 Selection of data

Accountants recognise only those *transactions* and *events* that comply with the definition of elements and recognition criteria provided in the conceptual framework on financial reporting. In effect, the use of the conventional accounting model results in certain data being selected for processing and other data, which fail to meet its narrow criteria, being discarded. Accountants therefore act as gatekeepers as to the data and ultimately information, that should reach the user.

The accounting education process has conditioned accountants to concentrate on the accuracy of data that is processed rather than worry about the data that is lost in the screening process. Wheatley (1994, p.109) suggests that the gatekeeping criteria should be revised and that the gates should be opened to more information in more places. Furthermore, information that is ambiguous should be identified and retained. Gatekeeping was a necessary function in the past, when the inputs made to a manual recording system had to be limited, but now that technology allows the processing of large amounts of data both quickly and accurately, the screening function should be minimised. Gatekeeping was also used as a means of improving the compatibility and consistency of the information. Companies recognised data only once predetermined criteria were met. Although comparability and to a lesser extent consistency are suitable characteristics of information in a stable environment, they are not suited to a volatile environment. In the latter circumstances, comparability is often achieved at the cost of economic reality.

Many examples of the adverse affect of the extensive screening process in accounting exist, such as the non-recognition of human resources and future contracts on the balance sheet and the non-recognition of orders until delivery has

taken place. The most important factors of success of businesses in a changing environment, that is employees, knowledge, innovation and flexibility, are often precisely the elements that are not recognised or are written off immediately as they fail the narrowly defined selection criteria of Accounting.

The challenge confronting accountants, educators and researchers is to reassess the criteria for the selection of data in Accounting. Useful information may be lost through restrictive and dated gatekeeping criteria. Advances in technology can facilitate the extension of the type of data selected for processing. The selection of data should be determined by the output requirements of the users of information, rather than by narrow and dated selection criteria.

5.3.10 Information processing

“Processing” refers to a continuous process and the term is used in a broad context to include the decoding, analysis and refinement of information as well as the identification of relationships within it. Data that meet the restrictive selection criteria of the traditional accounting model are often processed in such a way that its decision-useful qualities are destroyed. The volatile, exceptional, conflicting, small variance, unusual fluctuation and unexpected are often processed, analysed and explained away so that only the large numbers, important trends, significant variances, expected fluctuations and comparable amounts remain. This creates an illusion of objectivity, accuracy and usefulness. Wheatley (1994, p.108) contends that we’ve been so engaged in rounding things off, smoothing things over and keeping the lid on, that our organisations have been dying from a lack of the information on which they can feed, in other words, information that is different, disconfirming and filled with enough instability to knock new life into the system. Wheatley’s view is supported by discoveries in chaos theory, which suggest that even small, seemingly unimportant and slight variances may influence future direction of a system – the so-called “butterfly effect” (Gleick, 1987). Yet accountants are still trained to diligently remove the “white noise” (the small, apparently marginal deviations and distortions) from our financial information and they remain uncomfortable with volatility and uncertainty.

The challenge confronting accounting practitioners, educators and researchers is to re-evaluate the accounting concepts, qualitative characteristics and practices such as materiality, comparability, income smoothing, aggregation, matching, prudence and consistency, because the careless application of these concepts, characteristics and practices may destroy useful and potentially direction-giving information.

5.3.11 Dissemination of information

This concerns the flows and distribution of information both within and outside the organisation. In an information-based organisation, knowledge tends to accumulate at the bottom, in the minds of the specialised and highly trained personnel who do the work and direct themselves (Drucker, 1988). The “new” management style therefore adopts a bottom-up approach to the dissemination of information, contrast to the top-down approach that characterised the “old” management style. In the old style, information was gathered for management (top) who distributed it selectively to employees (bottom) on a need-to-know basis in order to command and control employees’ actions. The new style requires that information be generated for and used by specialist employees working together in crossfunctional teams (bottom) before being passed on, often on a selective basis, to management (top).

Consequently, the accounting department within an organisation will have to become more decentralised. Accounting staff should become members of the self-focusing, crossfunctional and independent teams within the organisation. They should gather, process and distribute information to the teams, allowing these specialists to appraise and amend their own processes. Timeous information should become freely available to all who require it for decision making. Accountants should increasingly become team players with excellent communication and interpersonal skills who are able to produce new innovative measures of performance when required to do so by the users. Accountants need to become players instead of remaining scorekeepers. The education of accountants will have to be reviewed to address these new skills required of accountants (Gouws & Bosua, 1997).

The challenge confronting accountants and educators is to adapt to the new demands of the information age organisation by gathering, processing and disseminating information so that decision-useful information can be supplied

timeously to all interested users. This implies that the accounting function in organisations should become increasingly decentralised and flexible. It requires further that accountants become proficient in a number of skills, such as communication, interpersonal relationships, problem-solving, innovative and creative thinking as well as in teamwork.

5.3.12 Behavioural impact

The traditional accounting model developed in a pragmatic fashion, by addressing and solving problems as they were encountered. The collection of principles, concepts and characteristics used in solving these problems have only recently been codified into a conceptual framework on financial reporting (SAICA, 1990). Unfortunately, these principles, concepts and characteristics were adopted without due consideration to their behavioural impact, both within and outside the organisation.

According to Johnson (1992, p.115) the most urgent need in business is to eliminate information which encourages people to manipulate processes in order to achieve results. Accounting concepts such as prudence and matching often lend themselves to such manipulation. The pressure to produce output for its own sake emanates to some extent from the matching concept as only costs attributed to sold products are deducted from revenue. An incentive may be created to produce inventory although it is not cost effective and contrary to the JIT philosophy as the costs are deferred to future periods. The prudence concept provides ample scope for creative accounting for it is based on the belief that it is better to reveal less rather than more until the uncertainty has been resolved. Lee (1987) is of the opinion that much of the creative accounting that has taken place consistently over the years has been justified in the name of the prudence concept.

Accounting standards and principles may also influence behaviour in a manner not always anticipated. In the United States, for example, the issue of an accounting statement (SFAS 106) requiring a provision to be created for post-retirement benefit costs in the period during which the services are rendered to the company, has resulted in the curtailment of these benefits by several companies (Pollitt, 1998,

p.45). Such curtailments resulting for the new accounting standards may have far-reaching social implications.

Hopwood (1985, p.18) suggests that much more effort should be devoted to finding out how Accounting affects user behaviour. The interest of society is not served if the accounting system encourages dysfunctional behaviour, such as the manipulation of results or the curtailment of benefits to employees.

The challenge confronting accounting researchers and standard setters is to consider the behavioural impact of accounting principles, concepts and characteristics in the context of a dynamic environment and a changing management approach. In such an assessment the behaviour that these concepts and characteristics may cause, both within and outside the organisation, should receive attention.

5.3.13 Short-term perspective University of Pretoria.etd

One of the dysfunctional behaviours that is supported by the accounting system is a short-term perspective in managerial decision making. This phenomenon occurs when a manager's decision and vision are dominated by the price of the firm's shares on the stock market (Lapsley & Pettigrew, 1994). Contrary to research findings, they often believe that a growing bottom line can favourably influence stock market prices. They may therefore resort to tactics that "create" short-term profits at the cost of the long-term well-being of the organisation.

Kaplan (1983) suggests that managers are especially likely to adopt a short-term perspective during a downturn in the economy. They attempt to minimise the negative impact on reported earnings by reducing capital investment and intangible investment in areas such as product development, human resources, research, advertising, promotion, maintenance, training, quality control and customer services. The immediate effect is to boost reported profits, but it is done at the expense of the company's long-term competitive position (Johnson & Kaplan, 1991). Allen (1994) goes so far as to suggest that directors spend company money on activities that will promote the short-term attractiveness of their company's shares to brokers and journalists.

Although Accounting is not the sole cause of the short-term orientation of management and other stakeholders, it does encourage and reinforce short-term assessments. Castelano *et al.* (1995) argue that the meeting of numerical targets encourages short-term thinking, as do tactics aimed at making the numbers. Peters (1991, p.583) contends that Accounting supports a short-term perspective by excluding sources of long-term revenue enhancement such as quality, service and flexibility from the measuring system. The periodic breaking of the business cycle in order to report the organisation's results also encourages a short-term view, as users place excessive reliance on profit figures that merely reflect short-term profitability and that cannot guarantee long-term profitability or survival.

The challenge confronting educators and accountants is to encourage and support a longer term view for the assessment of the performance of an organisation by both

internal and external users. Consequently, accounting information should focus more on the factors that create long-term value, including non-financial measures, that assess performance in key business processes (AICPA, 1994a).

5.3.14 Accounting as a control mechanism

Accounting information has not been used only to assist in decision making and to evaluate the performance of an organisation, but also to control the activities within the organisation. In his book, "Relevance Regained", Johnson (1992) argues that relevance was not lost by inappropriate accounting information, but rather by its inappropriate use to control business operations. Financial targets, budgets, forecasts and planning models became the focus of management to the detriment of areas such as customer relations, innovation, design and the use of technology. The myopia created by control based on financial numbers often resulted in lucrative opportunities being lost in favour of "meeting the budget". Resistance is however developing to the use of Accounting as a control mechanism in a command–control management style. Drucker (1988) says that the centre of gravity in employment is fast moving from manual and clerical workers to knowledge workers, who resist the command–control model. Consequently the role of Accounting as a control mechanism is likely to diminish.

The incorrect use of accounting information for control purposes encourages disfunctional behaviour on the part of the people in organisations. Deming (in Castelano *et al.*, 1995) recognises the need for financial data for purposes of planning, score keeping and resource allocation, but warns against its use for ranking, control and performance evaluation. However, until managers of businesses see Accounting as a tool to improve business performance rather than a means of exercising control, they will not acknowledge the benefits of developing better information systems (Hope & Hope, 1995).

The challenge confronting accounting researchers, accountants and other users of accounting information is to cease using it for control purposes, and to emphasise and develop its role as a supporter of decisions, scorekeeper of results and measurer of change.

5.3.15 The role of standardisation

In an attempt to make reporting more comparable and to reduce the number of accounting practices, standard setters worldwide have standardised accounting practices by issuing statements to regulate the reporting of business information. Business reporting is further entrenched by legislation such as companies and auditors acts. The combination of legislation and standards have created a comfort zone that makes many accountants slow to accept change and even encourage opposition to change. Lee (1987) attributes the lack of innovation in financial reporting practice to standardisation. He suggests that standardisation –

- creates a compliance complex,
- sterilises the accounting education process, and
- preserves the *status quo*.

The application of standards has become a recipe used by accountants that is seldom questioned. This compliance complex has resulted in the increasing demise of professional judgement. Lee (1987) holds that it would be beneficial to all concerned if the reporting process could restore to its former level the old fashioned virtue of professional judgement, not as an exercise in compliance with book rules, but rather with the aim of promoting the truth about business activities in corporate financial reports.

Standardisation has also inhibited the accounting education process, creating accountants who are unequipped and unwilling to experiment and innovate. Allen (1994) maintains that it has to be recognised as a general rule that accountants find it more difficult than people from other disciplines to come to terms with new trends. On a more positive note, Filmer (1992) states that there seems to be a gathering of momentum for change in Accounting but consensus has not been reached on how best to achieve it.

The challenge confronting accounting educators, standard setters and accountants is to break through the compliance mind set caused by standardisation, regulation and legislation. They should become more innovative; willing to experiment and to produce information that is exceptional, conflicting and unexpected. They should draft reports that reflect economic reality with its concomitant volatility, and should be more willing to exercise their professional judgement.

5.3.16 Underlying assumptions of traditional Accounting

The original accounting system flourished in an era dominated by a Newtonian view of the universe. In terms of this perspective on reality, man manages by separating the whole into parts, believes that influence occurs as a direct result of force exerted by one person on another, engages in complex planning for a world that is expected to be predictable, and searches continually for better methods of objectively perceiving the world (Wheatley, 1994, p.6). In essence, the universe is viewed as a large machine. Reality exists “out there” in the external world and I, “in here”, can objectively observe, measure and speculate about the external world without changing it (Zukav, 1979, p.55). However, now, at the end of the 20th century, scientists have been obliged to abandon the Newtonian view and admit that nature is not a huge predictable machine that can be understood by simply studying its parts. Furthermore, modern science now views man as forming an integral part of nature and as such he cannot observe reality without changing it (Zukav, 1979, p.56).

These new perspectives cast doubt on some of the fundamental assumptions underlying both the natural and social sciences. In Accounting, the implication of the new scientific perspective is that information cannot be recognised or measured without changing it, that objectivity is impossible and, consequently all information provided by accountants is biased. Accountants thus create their reality by selecting certain data and discarding others.

The underlying or implicit assumptions of the accounting discipline are still based on a dualistic, mechanistic and reductionistic perspective (Hakanson, 1978; Allen, 1994). In other disciplines, the Newtonian view is to an increasing extent being replaced by a “new science” approach. This approach involves a move from monism and dualism to holism; from wholes and parts to connections, patterns and

relationships; from linearity to non-linearity, and from closed systems to open systems. Basic assumptions about reality such as rationality, predictability, objectivity, entropy and causality are being questioned. The effect of the “new science” approach has already manifested itself in the social sciences in disciplines such as Management Theory and Organisational Theory (Scott, 1978; Peters, 1991). The question is whether Accounting can survive if it continues to use implicit assumptions that are so far removed from those being adopted in its environment, namely business organisations and society?

The challenge confronting accountants is to re-examine their view of reality, its underlying assumptions and the scientific approach adopted in Accounting. Such re-examination may well result in far more radical and profound changes than are envisaged in the current literature. However, periods of discontinuous and open ended change calls for the reassessment of the fundamentals of organisations and disciplines, too.

These challenges may serve as a basis for an improved accounting discipline which in turn provides more useful accounting information. Accounting and the accounting information systems are, however, subject to a number of constraints which also apply to those improvements which may arise in addressing the challenges. These constraints serve to limit the unbridled growth of information.

5.4 Constraints

Changing and improving the traditional accounting model cannot be considered without at least a reference to those aspects that act as constraints to the process. Such constraints serve to limit the undisciplined expansion of information.

The first constraint to Accounting is that of costs versus benefits. Thompson (1995) rightly states that business reporting is not free and no improvement can occur without also considering the relative costs and benefits. The assessment of costs versus benefits is inevitably a difficult and complex process, as these will differ from company to company and from industry to industry. The optimal disclosure level for

individual companies, for all companies in a group, or for society as a whole cannot be identified with certainty (AICPA, 1994a). However, this does not negate the need to perform the assessment even if, at best, it is based on estimates. The ICAEW (1981, p.23) identifies the costs of collecting, processing, reporting and auditing information as the costs of providing information. It includes the cost of adapting to new procedures if information requirements change. The benefits of additional disclosures are more difficult to assess as these may apply to both preparers and users. Users benefit by being able to make better informed decisions while preparers benefit by improved access to capital markets, its favourable impact on the enterprise's marketing and so forth (FASB, 1980a, par.136). The application of the cost versus benefit constraint is only meaningful if used in an open system environment where continuous feedback exists between the accounting information system and its stakeholders so that the relationship of costs to benefits are reassessed in a continuously basis.

In their report the AICPA (1994a) recommends guidelines on how costs of reporting may be contained so that benefits exceed costs:

- Business reporting should exclude information outside management's field of expertise or for which management is not the best source;
- Management should not be required to report on information that would significantly harm the company's competitive position;
- Management should not be required to forecast financial statements;
- Management should be under no obligation to gather information it does not have, or need, to manage the business;
- Certain elements of business reporting should be presented only if users and management agree (the concept of flexible reporting);
- Companies should not have to expand reporting of forward-looking information until there are more effective deterrents to unwarranted litigation.

The second serious constraint to the reporting of information is the limited ability of the conscious mind to process information. Hendriksen and Van Breda (1992, p.215) mention research on the ability of individuals to cope with increasing quantities of

information. The general finding is that decisions improve with increased information until a point is reached where the information provided becomes too much for the individual to analyse. At that point, where the individual begins to experience an *information overload*, decision making begins to degenerate again. Miller (1956) also found, as far back as the middle of the century, that individuals are inclined to limit the amount of information they use for decision-making purposes. This may result from the fact that in most cases, a person's short-term memory is limited to dealing with no more than seven items. However, in organisations the use of computers and groups of individuals for decision making mitigate this problem to some extent. Nevertheless, the provision of excessive and irrelevant information complicates the decision-making process and should therefore be avoided.

The third constraint is often treated as a characteristic of Accounting rather than a constraint and this is timeliness of the presentation of information. There is often an inverse relationship between timeliness and relevance. The longer the information takes to reach the stakeholders, the greater the possibility that its relevance will decline. Although timeliness is seldom an important constraint to internal stakeholders who can call for information when they need it, it is a potentially severe constraint to external stakeholders. The Institute of Chartered Accountants of Scotland (1988, p.81) suggests that the problem of timeliness may be overcome by means of new developments in information technology:

“... it would seem perfectly feasible for a full corporate report to be produced as a sub-set of the reports which are prepared for senior management as often as those reports are provided. Furthermore, it would be feasible for this information to be put on one of the electronic distribution networks at very small cost to the company.”

5.5 Summary

Over the centuries the evolution of the Accounting discipline has been based on an *ad hoc* and pragmatic approach. Accountants addressed problems as they were encountered and then developed appropriate solutions. The accounting system has remained essentially a closed system, focusing largely on the financially measurable

features of trading or manufacturing concerns. This closed system approach has served to insulate the discipline from changes in the environment.

Today's rapidly changing environment is forcing accountants to reassess their role and function both within the organisation and society. The continued disregard of changes in the environment and a lack of innovation will undoubtedly bring the accounting function into increasing disrepute, particularly as accountants recognise publicly that the current system is seriously flawed (Lee, 1987). The accounting information system cannot continue to produce inwardly focused information if the users of the information are increasingly requiring information on customers, suppliers, markets and competition; in other words, outwardly focused information. This implies that Accounting should become a flexible, open system that can readily adapt to changes in its environment. It should become a product of its environment. Accounting should develop from being a watchdog and scorekeeper to being a facilitator of change (Turney & Anderson, 1989). Accounting should progress from passive reporting of objectively verifiable facts of the past to proactive involvement in subjective judgements about the future (Allen, 1994, p.117).

Such a development in Accounting can only be achieved if accountants, academics and standard setters are willing and have the ability to adapt to the changing business environment. Gouws (1997) contends that change will be accountants' only vehicle for survival. Accountants will have to become the drivers of change and the innovators of the accounting discipline, business organisation and broader business environment. This role requires the development of new skills; a different attitude to change, volatility, uncertainty and continuous learning; and a restructuring of the education and training of new accountants (Koornhof, 1997).

Chapter 6 The construct of flexibility

“Developing flexible organisations is critical for business enterprises in the 1990s. Flexibility is a multi-dimensional concept – demanding agility and versatility; associated with change, innovation and novelty; coupled with robustness and resilience, implying stability, sustainable advantage and capabilities that may evolve over time.”

(Bahrami, 1992)

6.1 Introduction

In previous chapters the rapidly changing environment and its impact on businesses and their accounting information systems were discussed. This changing environment has resulted in substantial changes being introduced into the way in which organisations are managed, and their accounting information systems will have to adapt to these changes.

In this chapter the construct of flexibility in organisations is described and classified. As a point of departure, the following assumptions were made about it in chapter 1:

- It is discriminate and can be used to distinguish between business organisations;
- It is observable in business and affects human behaviour;
- It is measurable in that different types and levels can be distinguished; and
- It is operational in that it can be implemented in business organisations.

The chapter commences by providing a background on the role of flexibility in business organisations. The literature on management theory is used to motivate the need for the development and management of existing and new flexibility in businesses. The phenomenon of flexibility, observed in business and referred to in the literature, is refined into a construct by defining the idea and demarcating its field of study. The next section addresses the nature of flexibility further by considering its relationships to aspects such as survival, change, uncertainty, risk and strategy. Once the construct has been defined, a classification framework is suggested which

forms the basis for studying flexibility in business organisations and for measuring information on flexibility. Six categories of flexibility, based largely on a functional approach, is used to identify the different types of flexibility in organisations. The scope of each of these categories is discussed and illustrated by means of examples. The chapter concludes by suggesting implementation procedures for designing more flexible enterprises.

Before the construct of flexibility can be introduced into Accounting and accounting information, it is necessary first to consider its nature and role in the business organisation.

6.2 Role of flexibility

This central role that flexibility plays in the survival and success of organisations in a changing environment is well recognised by several authors in Management Theory. Peters (1991, p.635) suggests 45 prescriptions for becoming and remaining a successful business but concludes that the *chief axiom* is the necessity of attaining and maintaining heretofore undreamed of *flexibility*. He notes that each of his prescriptions is aimed at advancing the achievement of flexibility. Pasmore (1994, p.4) maintains that the more flexible an organisation becomes, the better it can respond to change. Volberda (1998, p.xi) suggests that the flexible firm facilitates creativity, innovation and speed while maintaining co-ordination, focus and control. Allen (1994, p.1) contends that under conditions of rapid change, competitive advantage is more likely to be a function of the organisation's awareness, anticipation and adaptability and implies that flexibility in the organisation is inherent in these qualities. According to Drucker (1980, p.47) a business needs to be able both to ride out sudden hard blows and avail itself to unexpected opportunities in turbulent times. This implies that the business should be flexible enough to handle both the unexpected threats and opportunities posed by an uncertain future and unstable environment. Finally, Johnson (1992, p.89) identifies responsiveness and flexibility as the two qualities for organisational success, and emphasises that the need to be flexible and not just responsive, is an implicit imperative of competition in

the information age. He argues that a failure to understand the costs of complexity and the *benefits of flexibility* caused American companies to lose market share and profitability to more focused and flexible competitors in the 1970s and 1980s (1992, p.52).

Managers of companies seem to be aware of the benefits of being flexible but lack the necessary guidance to create this rather ethereal and elusive quality in their organisations. Steers (1975) noted that flexibility was the evaluation criterion mentioned most often in organisations. Unfortunately there is relatively little theory on flexibility as well as a lack of theoretical frameworks to guide management in understanding and identifying different types of flexibility and in creating and sustaining flexible organisations (Volberda, 1998). Eppink (1978) confirms that although flexibility may be regarded as a means of addressing organisational problems, the areas for enhancing flexibility remain largely unexplored. The methods adopted by managers to create flexibility in their organisations consequently are of an *ad hoc* nature, rather than forming a comprehensive, systematic and structured approach (Aaker & Mascarenhas, 1984).

There is a need for comprehensive frameworks of the theoretical and practical aspects of flexibility that will help decision makers to assess actual flexibility and assist management to create or, where necessary, destroy flexibility in response to environmental change. The first step in the development of a comprehensive framework is to clarify and define the ambivalent phenomenon of flexibility in business organisations. Such clarification, together with a demarcation of the study field can then be used to refine the phenomenon of flexibility into a construct which can serve as a basis for developing a framework (refer to figure 1.1).

6.3 Definition of flexibility

According to Puxty (1993), a definition defines the space within which a more detailed analysis takes place and in doing so, excludes other spaces but without creating a wholly unique space for itself. As the term flexibility is often used in the

literature to describe a range of conditions, qualities and activities in organisations, it is necessary to define it for purposes of this thesis. Only then can the space and focus within which a more detailed analysis of the construct can commence, be identified.

In the *Third International Dictionary* (Webster, 1971, p.869) the adjective “flexible” is defined as being –

“characterised by a ready capability for modification or change, by plasticity, pliancy, variability and often by consequent adaptability to new situations”.

The *World Book Dictionary* (Barnhart & Barnhart, 1986, p.816) defines the adjective “flexible” as being “easily adapted to fit various conditions”, and the noun “flexibility” as “having a flexible quality”.

From these definitions one may deduce that flexibility concerns the ability of people to change and adapt easily to changing circumstances. In organisations, flexibility refers to the ability of the people in the organisation, individually and collectively, to adapt to changes in the organisational environment. Volberda (1998) suggests that managers intuitively understand flexibility to mean mobility, responsiveness, agility, suppleness or lightness. This general approach in defining flexibility is however superficial for it does not encompass the complexity and intricacies or paradoxical nature of the phenomenon. To illustrate, these definitions emphasise the impact of the environment on the organisation and its ability to adapt, a perspective adopted in static contingency theory (Volberda, 1998, p.44). The dynamic interchange which takes place between the enterprise and its environment and the ability of the enterprise to influence and change its environment, a view held in dynamic contingency theory, is not considered in these rather simplistic definitions. Furthermore, the definitions concentrate on a strategy of adaptation, while Gerwin (1993) contends that other strategies for flexibility, such as redefinition, banking and reduction, exist.

A number of more comprehensive definitions of flexibility are provided in the literature in Management Theory and Accounting. The different foci of these

definitions are considered briefly, before a definition of flexibility is proposed for this thesis.

6.3.1 Financing structure

Bernstein (1978, p.510) defines flexibility as the ability to raise funds, particularly in adverse capital markets. This definition focuses on the *financing structure* of the organisation. Donaldson (1971, p.7) adopted a similar approach, stating that the term flexibility is used with reference to capital structure decisions where a firm is choosing a particular mix of financing sources. While the goal is often to find the mix that minimises cost and maximises value at a point in time, few of these definitions contain a facet pertaining to uncertainty, undefined future needs and the ability of the organisation to adjust its financing structure in response to unexpected events. These definitions adopt a functional approach in defining flexibility as the ability to raise finance if unexpected events occur.

A shortcoming of such a functional approach is that it restricts flexibility to a function or area in the organisation instead of viewing it as a construct which permeates the whole organisation. A further limitation is that flexibility in particular functions may be emphasised at the cost of flexibility in the whole enterprise while the interaction between functions and its impact on flexibility may be overlooked.

6.3.2 Balancing of cash flows

The FASB (1984) uses the term “financial flexibility” in its accounting standards to highlight the *balancing of cash flows*. Financial flexibility is viewed as the ability of an entity to alter the amounts and timing of cash flows in order to meet unexpected needs and opportunities. This definition also adopts a functional approach in that the management of the cash function forms the basis of the definition. In an earlier Discussion Memorandum, *Reporting funds flows, liquidity and financial flexibility* (FASB, 1980b, p.i), financial flexibility was identified as

“...a measure of the adaptability of a business. The need for adaptability may be offensive or defensive. A business may need financial flexibility to take advantage of an unexpected new investment

opportunity or to survive a crisis resulting from a change in operating conditions”.

In this definition of the FASB, the focus is on the ability of a company to access cash quickly to finance net cash outflows or invest net cash inflows. It thus focuses on one resource as a means of creating flexibility. A financially flexible business will typically have a large inflow of cash from operations, large unused borrowing capabilities, or assets that can be realised quickly in significant amounts (FASB, 1980b). In its Exposure Draft the AICPA (1993, p.56) provides a similar albeit narrower definition of financial flexibility. Financial flexibility is defined as the *attribute* of an entity which gives it the ability to take action that will offset or eliminate an excess of required and expected cash payments over its cash resources. This definition focuses on the cash payments/threat or defensive side to the exclusion of the cash receipts/opportunity or offensive side.

Heath (1978, p.20) also uses the balancing of cash receipts and payments as the basis for his definition of flexibility. He describes a financially flexible company as one that can take corrective action that will eliminate an excess of required cash payments over expected cash receipts quickly and with minor adverse effect on its present and future earnings or on the market value of its stock. Again, the emphasis is on dealing with unexpected cash shortages rather than on cash surpluses. These definitions do not recognise that cash is only one of the resources of the organisation and that flexibility may also be created by means of other resources. They limit the strategic implications to adaptability and overlook other possible strategic uses of flexibility.

6.3.3 Human perspective

Other definitions emphasise the human aspect of flexibility. Flexibility in an organisation is seen to exist in the people in the organisation. Gabor (1969) states that flexible organisations result from flexible individuals and almost 30 years later Pasmore (1994) says that in the final analysis one must admit that it is not organisations that are flexible or inflexible, but only the people in them. Improving flexibility in organisations starts with the recognition that organisational change and

human change are one and the same and the realisation that humans are the drivers of change in organisations. This implies that in order to achieve flexibility not only structures, systems and procedure need to be changed, but also behaviours and mind sets. People in organisations need not act only as drivers of change, they can also act as opponents to change and flexibility through an intricate network of defence routines. These defence routines can be addressed by creating an awareness of one's own and other people's routines and by creating a positive view of flexibility and change through participation and ownership (see Argyris, 1985).

The human perspective of flexibility can be classified as an actor approach to the definition in that the roles, personalities and traits of different people involved in the organisation are emphasised (Volberda, 1998, p.3). The problem with this approach is that there is no consensus in the literature as to what the flexibility trait of individuals entails. These definitions also do not recognise that an organisation can be structured and managed in a manner that fosters and rewards flexibility in employees.

6.3.4 Customer satisfaction

Johnson (1992) defines flexibility from the perspective of customer satisfaction, by adopting a functional perspective and identifying the concept of flexibility as producing immediately or within a period that satisfies the customer, exactly what the customer requests. He concedes, however, that there is a human aspect to flexibility, as is evidenced by his statement that flexibility is in the long run achieved only by changing lifestyles and ways of thinking.

Harrigan (1985) uses the term strategic flexibility to define flexibility from a somewhat broader perspective, namely a market perspective. Strategic flexibility refers to a firm's ability to reposition itself in markets, change its game plan or dismantle its current strategies. Eppink (1978) uses the term competitive flexibility and defines it as the ability of the enterprise to react to competitive changes caused by a major transformation of the market position, through the introduction of a new product or the entry of new competition.

These definitions are all based on a functional approach in that they focus on the sales and marketing function of the organisation, to the exclusion of other functions.

6.3.5 Operating perspective

Trigeorgis (1993) also views flexibility from an operating perspective. He defines it as the ability of management to alter its operating strategy in order to capitalise on favourable future opportunities or to mitigate losses. Management may choose to defer, expand, contract, abandon or otherwise alter a project at different stages during its useful operating life. Kulatilaka and Marks (1988) state that one of the significant advantages of flexibility is that it provides the production process with an ability to modify itself in the face of uncertainty. Kulatilaka (1993) uses the term “operating flexibility” to define the ability of managers to revise operating decisions in response to economic conditions. This includes choices such as switching from the use of machine A to machine B. He notes that the importance of such operating options is critical when the environment is highly volatile and technology is flexible, thus permitting managerial intervention at little cost.

These definitions are also based on a functional perspective, namely one which emphasises the production function of the organisation.

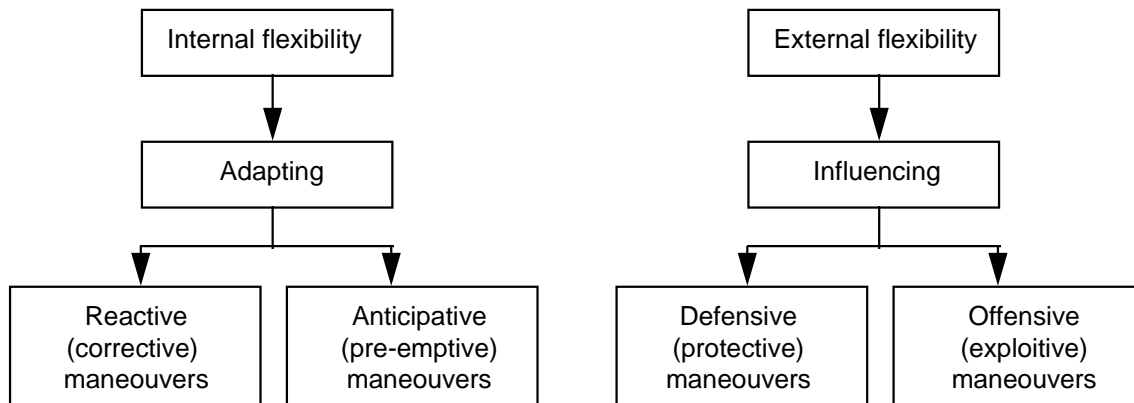
6.3.6 Other perspectives

Further definitions of flexibility, combining elements of the above perspectives, are proposed by Ansoff (1988), Eppink (1978), Kanter (1982), Volberda (1998) and Donaldson (1971). According to Ansoff (1988, p.42) flexibility can be measured by two proxy objectives: external flexibility namely by means of a diversified pattern of product-market investments, and internal flexibility by means of liquidity of resources.

Volberda (1998, p.93) holds a somewhat different perspective (figure 6.1) in which internal flexibility is viewed as the capacity of organisations to adapt to the demands of the environment, while external flexibility is the capacity of organisations to influence their environment and thereby reduce their vulnerability. This definition thus

includes two strategies, on the one hand of adaptation to the environment and on the other of influencing the environment.

Figure 6.1 : Distinction between internal and external flexibility



Source: Volberda, H. W. (1998) *Building the flexible firm: how to remain competitive*, New York: Oxford University Press, p.93.

Kanter (1982, p.197) suggests that flexibility is an organisational rather than a pure individual variable and that organisational conditions such as structure and culture can be used to create and stimulate flexibility. Eppink (1978, p.42) views flexibility as a characteristic of an organisation that makes it less vulnerable to unforeseen external changes or puts it in a better position to respond successfully to such a change. Donaldson (1971, p.8) uses a broader term, namely “financial mobility”, which he defines as

“... the capacity to redirect the use of financial resources in a manner consistent with the evolving goals of management as it responds to new information about the company and its environment”.

In his definition the dynamic open system interaction between the organisation and its environment is identified and flexibility is linked to strategic goals of management. The definition is however restricted to financial resources and focuses on the capabilities of management to the exclusion of organisational conditions. Volberda (1998, p.100) includes both these aspects in his definition of flexibility as the degree to which an organisation has a variety of managerial capabilities and speed at which these can be activated, to increase the control capacity of management and improve

the controllability of the organisation. This definition concentrates the elements necessary for the implementation of flexibility.

6.3.7 Proposed definition

The wide and often confusing use of the term flexibility in the literature warrants a clarification of its meaning. The above definitions all tend to concentrate only on certain aspects of flexibility, such as resources or functions of the organisation. Flexibility is, however, a multidimensional and complex term. For the purpose of this thesis a broad definition of the term which includes its strategic, operative, administrative and behavioural aspects and which emphasises that the creation of flexibility in organisations is a continuous, holistic and integrated process initiated and maintained by management is required.

The definition of Donaldson (1971) for financial mobility is used as a point of departure for the development of a more comprehensive definition that meets the aforementioned objective, as follows:

- The term “financial mobility” is replaced by the broader construct of “flexibility”;
- Flexibility is recognised as being a process, implying that it is continuous and regular feedback is necessary;
- The reference to capacity is broadened by adding more specific terms, namely awareness, responsiveness, willingness and ability which provide a more comprehensive description;
- The words “to take action” are added;
- The verb “redirect” is replaced by “reposition” to emphasise the interaction between the organisation and the environment;
- The reference to financial resources is extended to include all resources and functions;
- The reference to goals is extended to include vision and strategy;
- The words proactively or reactively are added to incorporate the dynamic interaction between the organisation on the environment.

- “New information” is linked to foreseen change as well as unforeseen change; and
- The restrictive term “company” is replaced by the broader term “organisation”.

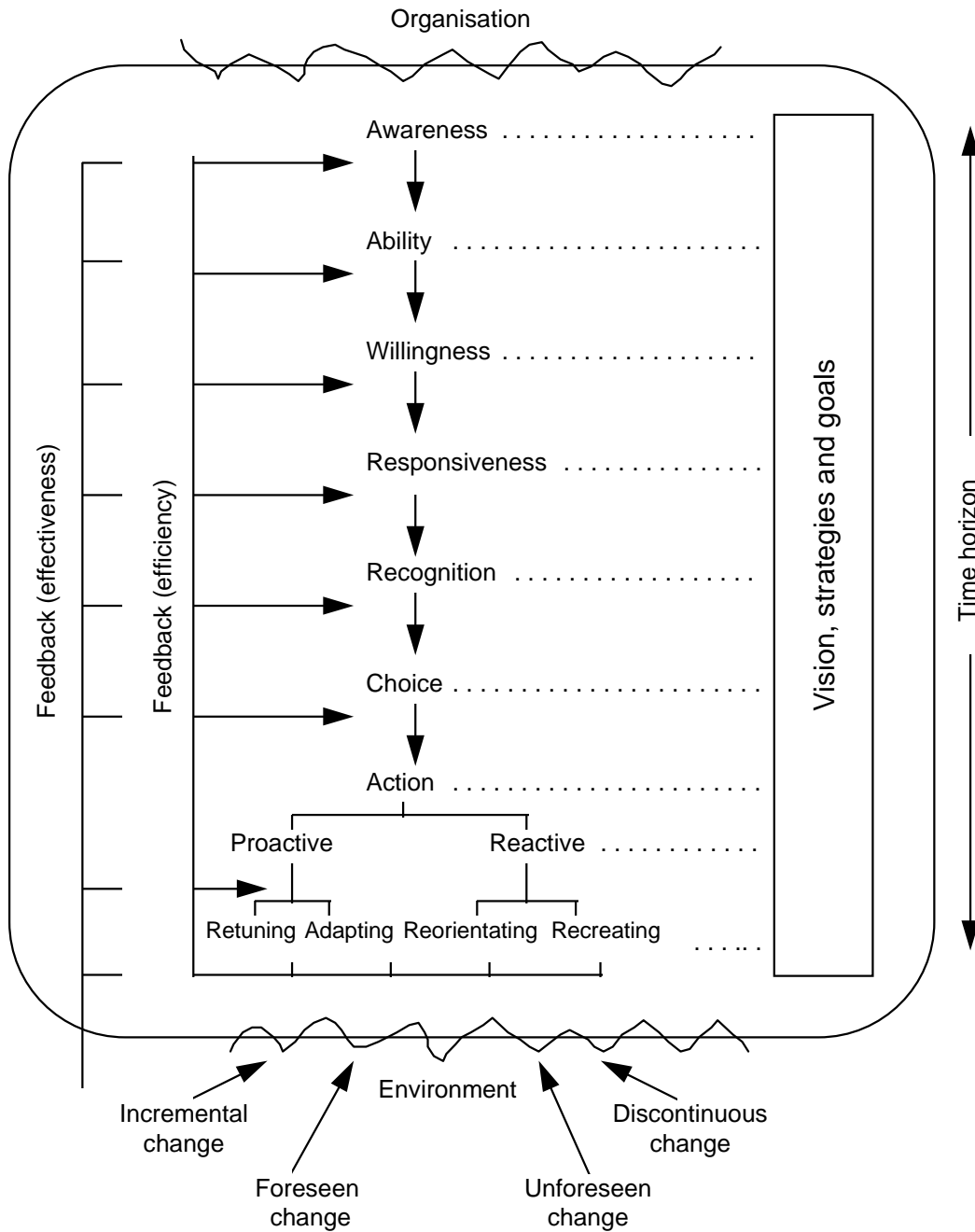
The amended definition of flexibility that is used in this thesis is as follows:

Flexibility is the process of being aware, responsive, willing and able to take action to reposition the resources and functions of the organisation in a manner consistent with the evolving vision, strategies and goals of management as they respond proactively or reactively to new information on foreseen and unforeseen change in the organisation and its environment.

The definition encompasses the narrower definitions from operating, financial, strategic, marketing, manufacturing and behavioural perspectives. It is based on an open system perspective of a dynamic relationship between the organisation and its environment. It also incorporates Volberda’s contention (1998, p.3) that flexibility has technical, managerial, organisational and human resource implications. In the classification framework proposed in section 6.5 of this chapter, the different aspects of flexibility are developed further.

The above definition also illustrates the steps in the process of creating flexibility in organisations, depicted diagrammatically in the flexibility chain in figure 6.2.

Figure 6.2 : The flexibility chain



Source: Own observation.

The flexibility chain is activated once an awareness of the benefits to individuals and organisations of being flexible in a volatile environment is created. To support the awareness, the ability to be flexible and to handle change should be created in individuals through continuous learning and training and in the organisation through its structure, culture and management style. A willingness to become flexible and to

deal with change is created through a change in attitude towards volatility and uncertainty and by addressing existing defensive routines of individuals and groups within the organisation. As a result of the ability and willingness to be flexible, supported further with rewards such as incentive schemes, the responsiveness of individuals and the organisation increase.

The environment and organisation will continuously be screened for change of either an incremental or discontinuous nature. The next link is to recognise changes that should be selected for further investigation. Once these changes have been selected, a managerial choice is made from among the variety of options for repositioning the organisation. The choice results in corrective action being taken. Depending on the stability or volatility of the environment, the nature of change, (incremental/discontinuous, foreseen/unforeseen) and whether management action is proactive or reactive, the organisation will need to retune, readapt, reorientate or recreate itself. Reorientation and recreation will result in fundamental change to the organisational structure, culture, vision and strategy. Retuning and readapting requires repositioning within the current structure, culture, vision and strategy (Nadler & Tushman, 1995).

All the links in the chain are driven by the vision, strategy and goals of the organisation, as determined by management (Gerwin, 1993). The vision and strategy will evolve but will remain fairly constant in cases where the change is incremental and the actions are aimed at retuning or readapting. In cases where the actions are aimed at reorientation or recreation, the vision and strategy may require fundamental change.

The flexibility chain represents a process of continuous improvement that is adjusted through feedback – internal feedback on the efficiency of the process and external feedback on its effectiveness. The process is constrained by the time horizon within which it needs to be completed. The change process may be discrete or continuous and the time horizon of the process may be short term, medium term or long term (Upton, 1994). Competitive advantage arises when the actions of retuning, readaptation, reorientation or recreation take place ahead of those of competitors

(Aaker & Mascarenhas, 1984) University of Jyväskylä. Four strategic aspects which may act also as constraints in the flexibility process, are introduced later in the chapter.

6.4 Relationships with flexibility

The construct of flexibility in the organisation can be understood further through its relationships with other concepts. Therefore the relationship of flexibility to change, survival, management responsibility and choice, organisational conditions, competitive strategy, risk and return, strategy, resource allocation and innovation are addressed in this section.

6.4.1 Change

The nature, predictability and pace of change in the environment and organisation influences the levels of flexibility that should be created and maintained by management. Ackoff (1981) comments that one cannot deal with change effectively unless one understands its nature. The nature of change was addressed in chapter 2. Nadler and Tushman (1995) identify two types of change, namely incremental and discontinuous change. A further distinction can be made between foreseen and unforeseen change (Volberda, 1998). During times of instability with high levels of uncertainty, discontinuous and unforeseen change require high levels of flexibility in organisations. Such flexibility enables organisations to respond quickly and effectively to rapid and unpredictable calls for repositioning. Heath (1978) confirms that the greater the volatility and uncertainty in the environment, the greater a company's need for flexibility. The nature of the change also influences flexibility in organisations, as discontinuous change requires more and different types of flexibility than incremental change. Volberda (1998, p.94) also holds the view that different types of change may require different types of flexibility.

Flexibility can be viewed as a function of change and uncertainty. The faster the pace of change, the more extreme its nature and the more unpredictable it is, the greater the necessity to plan for, manage and sustain high levels of the appropriate

type of flexibility. Creating and sustaining such levels of flexibility is a continuous process that entails scanning the environment, creating alternatives and repositioning the company in response to the rapidly changing circumstances.

From the above exposition it should be clear that levels of flexibility and types of flexibility are unlikely to remain constant, but will fluctuate as threats and opportunities assail the enterprise and decisions are made and actions are taken. At best the management of an organisation strives towards maintaining specified levels of required flexibility after considering the type of organisation and the existing and expected future volatility in its environment. In practice, this goal is elusive, because events take place that constantly change current and required flexibility levels in the organisation. Pasmore (1994) finds that companies that are flexible have usually worked at developing flexibility, generally over a long period of time, and to sustain flexibility, companies will have to continue to work at it. It should thus be regarded as a continuous process rather than an ultimate aim.

However, there is a limit to the extent of flexibility that can be created in organisations. Weick (1979) concludes that complete, unlimited flexibility makes it impossible for a company to retain a sense of identity and continuity. In other words, without stability and control it will result in chaos. In fact, Volberda (1998, p.92) suggests that a flexible organisation is inherently stable, constantly steering a course between rigidity and overreaction. The term flexibility is thus paradoxical in that the management of the organisation should create flexible capabilities which avoids rigidity on the one hand and chaos on the other. Flexibility is, therefore, balanced on a dichotomy of change and stability. It is balanced on the edge between rigidity and chaos – too much stability results in rigidity and too much change in chaos.

6.4.2 Survival

Flexibility is an essential tool for organisational survival (Toffler, 1985; Peters, 1991; Pasmore, 1994). As was noted in chapter 4, the turbulent environment increasingly threatens the continued existence of organisations. This suggests that flexible companies are more likely to survive volatile times than inflexible companies as they create strategic options to deal with unforeseen change.

The idea of survival, equilibrium and homeostasis originate from Systems Theory. The suggestion is that during unstable times where the survival of the open system is threatened, the system will adapt to its environment or influence its environment to change to ensure its continued existence. Darwin was one of the first to recognise this adaptive mechanism of open systems (Ijiri, 1967, p.163). What is often a latent instinct of an open system becomes dominant once its survival is threatened.

Flexibility provides a means whereby the management of the organisation can gain some control over the environment. Most of the definitions on flexibility refer to the adaptive capabilities that it affords organisations, but fail to mention specifically its impact on the survival capabilities of organisations. Other implications seldom addressed in definitions are the potential of a flexible organisation to proactively influence and change its environment or to preserve unused flexibility which may be used later to protect its continued existence (Gerwin, 1993).

6.4.3 Management responsibility and choice

Creating a flexible organisation requires the efforts of management: "Flexibility is perceived to be a management task" (Volberda, 1998). It depends on the ability of management to create a variety of options and capabilities in particular circumstances so that a choice may be made. It depends further on the speed with which management can access and utilise the flexibility. In responding to unexpected opportunities or threats, management will first use the current capabilities in the organisation. If these are insufficient, it will use its reserve of potential capabilities or create a new range of capabilities. According to Donaldson (1971, p.313) there should always be capacity for instant response to completely unexpected needs; and this could be extended to existing or potential flexibility. The variety of capabilities and options available to management should be aligned with the level of stability in its environment. In a relatively stable environment, less variety of options is required than in an unstable and unpredictable environment. Aaker and Mascarenhas (1984) suggest that flexibility is the most cost effective method for coping with change and uncertainty. Management may, however, consider alternative options such as insurance, control, avoidance, prediction and contingency planning.

Flexibility is often viewed as a portfolio of put and call options held by the management of an organisation. This portfolio allows management to choose between the different options in response to new information (see Trigeorgis, 1993; Muralidhar, 1992). Quinn (1985) views flexibility as keeping options open by specifying broad performance goals and allowing for different technical approaches for achievement. A small number of options restricts effective decision making and may ultimately affect the solvency and survival of the organisation. The higher the level of flexibility, the more alternatives are generally available to management for repositioning the organisation in its environment and consequently the greater the probability that it will survive and prosper in the future. Koornhof (1988) notes that the greater the number of feasible choices available to an enterprise, the higher its flexibility. A high level of flexibility reduces the number of threats and increases the available opportunities. The number of options necessary to attain flexibility is, however, not unlimited. Furthermore, there is not necessarily a linear relationship between the volatility in the environment and the number of options. Jordan and Graves (1991) suggest that most flexibility can be obtained at a low cost because only a few options are necessary. Instead of concentrating solely on the quantity of options, the nature and feasibility of each one should also be taken into consideration.

The flexibility on an organisation is determined by the level and nature of required and current flexibility. Where there are big differences between the two levels, the organisation will struggle to deal with unexpected threats and may have to forgo favourable opportunities. Gerwin (1993) suggests that there are actually three types of flexibility – actual, required and potential. Actual flexibility (a) arises from the use of certain resources and capabilities and is based on experience. Required flexibility (r) is the flexibility target identified by management after scanning the environment and considering company strategy. Potential flexibility (p) indicates the flexibility possible within the existing organisational design. Inappropriate amounts of flexibility are revealed by discrepancies between the three types. When $a > r$, the level of p is not relevant unless the organisation has excessive flexibility and is approaching entropy or it is “banked” for future use. When $r > a$, management should utilise more potential capabilities (p). If $r > a$ and p, management should either attempt to

influence the environment to lower the required flexibility, or increase the potential flexibility by redesigning the organisation (Volberda, 1998, p.95). Therefore (p) can therefore, be divided into existing potential flexibility or static flexibility and redesigned potential flexibility or dynamic flexibility (Zelenovic, 1982). It is the responsibility of management to continuously balance the required, actual and static and dynamic potential flexibility.

6.4.4 Organisational conditions

The more unstable and unpredictable the task and general environment of an organisation, the more flexible the organisation should become (Thompson, 1967; Lawrence & Lorsch, 1967). Flexibility in the organisation is created through a flexible organic structure (Peters, 1991; Drucker, 1988), the creation of an organisational culture which supports flexibility (Johnson, 1992; Stacey, 1992a) and the efficient use of technology in manufacturing and information systems (Zelenovic, 1982; Jaikumar, 1986). Volberda (1998, p.124) classifies organisational conditions into technology, culture and structure according to their potential for creating or destroying flexibility. Routine technology restricts the potential for flexibility, whereas non-routine technology enhances flexibility (p.125). Mechanistic organisational structures limit flexibility because of its established planning and control systems, while an organic structure enhances flexibility through rudimentary and flexible planning and control systems (p.137). Finally, the existing idea system found in a conservative culture restricts flexibility while an innovative idea system enhances the potential for flexibility (p.165).

The level and types of flexibility in an organisation does not remain static. Instead the flexible enterprise constantly realigns itself and its need for flexibility to the changing demands of its environment. Levels of flexibility fluctuate not only within organisations, but also among companies, industries and countries. Attaining flexibility in big firms is not easy (Peters, 1991) and a large company may find it more difficult to create high levels of flexibility than a small company. In small firms the cost structure for example may be changed faster and more easily than in big firms. The aim of achieving higher levels of flexibility is one of the reasons for the move towards smaller firms through unbundling and refocusing. Hammer and Champy

(1993) contend that recent efforts of business process re-engineering in many large corporations are directed primarily at enlarging the flexibility potential of these organisations. The level of maturity of an organisation or an industry may also influence the levels of flexibility. Young and aggressively growing companies or industries require higher levels of flexibility to exploit new opportunities and support rapid growth. More mature companies and industries require lower levels of flexibility.

6.4.5 Competitive advantage

Flexibility provides a means of gaining competitive advantage in an unstable environment.

The level and type of required, actual and potential flexibility are determined by competitors. This implies that the organisation needs to examine and analyse competitors and their flexibility on a continual basis. The flexible organisation also creates competitive advantage through speed and surprise. Speed refers to the comparatively faster evolution of the company's products, services and ways of doing business than that of its competitions (Pasmore, 1994). The organisation becomes an industry leader and remains in a leadership position by virtue of its ability to adapt quickly and efficiently.

The nature of environmental changes as well as the profile of competitors, influences the time frame within which the flexibility process should be completed, viz. in the short, medium or long term. Evans (1991) suggests that these different time frames may call for different types of flexibility. Surprise creates competitive advantage in that the flexible organisation constantly screens the environment and is able to identify opportunities such as new products, markets, research and cost effective manufacturing techniques ahead of its competitors. A flexible organisation can also introduce the element of surprise by using its flexibility to influence the environment and create more uncertainties for its rivals so as to establish competitive advantage (Gerwin, 1993). Pasmore (1994) maintains that to remain an industry leader the other person, the organisation and the country have to be out-invented, out-invested

and out-manoeuvred. Flexibility is thus an important strategic tool that management can use to create and sustain competitive advantage.

6.4.6 Risk and return

There is an inverse relationship between flexibility and risk (Koornhof, 1988). The lower the flexibility of an organisation the higher the level of risk, although a linear relationship may not necessarily exist. To illustrate, Everingham and Hopkins (1982) mention that an enterprise that has fully utilised its borrowing capacity in capital intensive projects may achieve extremely high rates of return but at the expense of sacrificing its financial flexibility and increasing its risk profile. This relationship applies not only to financial flexibility but to all types. An inflexible firm is a vulnerable firm. This vulnerability may, for example, arise from reliance on a limited number of suppliers, distributors, customers, products or services. However, there is a limit to the relationship between flexibility and risk. Excessive flexibility may result in waste, inefficiencies and declines in profitability which increase the risk profile of organisation, and may, as was stated earlier, even result in a chaotic firm (Volberda, 1998).

The perceptions about the relationship between risk and return is incomplete if the element of flexibility is not included. The relationship between risk and return is often based on historical information, on a relatively short-term view of performance, is deemed to be linear and focuses on the organisation and not the environment. These perceptions change when flexibility is included as a third element in the equation. Flexibility introduces a future-oriented, longer term perspective, which focuses on change in the environment and on relationships which are mostly non-linear in nature.

The evaluation of an enterprise's risk is important to stakeholders as the security of amongst others their investments, dividends, interest, capital growth, and continued employment, may be affected by excessive risk exposure. The risk profile of the enterprise influences the rate of return expected from the investment – the higher the perceived risk, the higher the expected rate of return (Koornhof, 1988). It is important that management and other stakeholders of organisations evaluate the flexibility of an organisation. The levels of required, actual and potential flexibility provide an

indication of its survival potential and level of risk and thus expected rate of return. Any decisions affecting flexibility should be made with due consideration to the impact on risk and return. The current accounting information system is the best equipped to provide the necessary information for the assessment of the impact of flexibility on risk and return to stakeholders.

6.4.7 Strategy

There is a close relationship between strategy, flexibility and change. Change should be approached in a way that preserves flexibility in organisations, so as to accommodate future change (Pasmore, 1994). Any decisions affecting flexibility should be made within the parameters of strategy. Ansoff (1988) contends that strategy acts as a constraint to flexibility. Thus the nature of the flexibility created in an organisation is determined by its strategy.

However, there is also a continuous interaction between flexibility and strategy as illustrated in the flexibility chain in figure 6.2. Reichwald and Behrbohm (in Volberda, 1998) sees flexibility rather as a means of achieving strategy by compensating for strategy deviating effects or taking advantage of the strategy amplifying effects of possible events. Therefore management should consider the impact that the development of new company strategy will have on the actual and potential levels of flexibility. Required flexibility levels are based on existing strategy and an analysis of the environmental change and uncertainties (Gerwin, 1993). This interaction between strategy and flexibility may be illustrated by the following examples:

- If a company develops a new strategy, it should determine its current and potential level of flexibility, re-establish the required level and then assess the impact that the new strategy may have on current and potential levels. The attainment of specified levels and types of flexibility may even form part of the new strategy.
- If faced by an adverse event which requires a decision between a portfolio of options (the result of flexibility), the options considered should be in line with current strategy (Ansoff, 1988). Where the survival of the company is severely

threatened, however, this constraint will fall away and decisions will be taken to preserve the existence of the company rather than to follow its current strategy.

Quinn (1985) recognises that flexibility may impact on the redefinition of strategies, especially in unstable times. Flexible organisations will redefine strategy in such environments to create more flexibility and therefore better strategic options so that it obtains a more appropriate fit or alignment to its task environment (Sanchez, 1993).

6.4.8 Resource allocation

In several definitions flexibility is viewed as arising from resources which may be redeployed, coupled with the ability of management to apply these resources to utilise opportunities or avert threats. Donaldson (1971) suggests that the resources under the control of management which can be used to create flexibility, should be assessed in terms of

- their magnitude;
- their conditions of availability if any;
- the certainty of their availability with a given time horizon; and
- the required lead time to activate the resource.

The following aspects should also be taken into consideration:

- The costs related to utilising the resource such as selling, installation and transaction costs;
- The level of disruption to the organisation in utilising or redirecting the resources; and
- The impact on the competitive position of the company as well as on current levels of flexibility.

Quinn (1985) suggests that three activities are essential from a limited resources perspective:

- The organisation establishes a horizon scanning activity to identify probable future threats and opportunities.
- The organisation creates sufficient resource buffers.
- The organisation develops and positions activities to drive the action at the current moment.

Aaker and Mascarenhas (1984) recognise as methods of increasing flexibility the reduction of existing commitments to resources as well as the investment in under-utilised resources, to create potential flexibility.

In using existing or potential resources to create flexibility, the management develops a priority list of resources to be utilised in response to different unexpected events scenarios. A priority list may form part of a more comprehensive plan of action in responding to different future opportunities and threats (Donaldson, 1971).

Flexibility impacts on scarce resource allocation decisions in especially unstable business environments. Muralidhar (1992) states that it is clear that having flexibility is desirable in the face of future uncertainty and that investing in flexibility is a resource allocation decision. This view is supported by Hambrick (in Harrigan, 1985). He sees the purpose of strategy as the balancing of commitments on the one hand

and resource flexibility on the other. This balance is influenced by the nature and predictability of change in the environment.

6.4.9 Innovation

The factors of innovation, flexibility and change have a mutual influence on each other. If change is regarded as the driver of innovation, flexibility is the facilitator. Volberda (1998) comments that innovation cannot be achieved without some kind of change. However, every change results in innovation: Flexibility is a necessary but not sufficient condition for innovation, because it is driven by change and accommodated by flexibility. This suggests that flexible companies are better situated to foster innovation than inflexible companies. Kanter (1982) notes that innovations are more likely to flourish when organisational conditions allow flexibility.

Two types of flexibility are identified in relation to innovation. The first type creates a repertoire of routine designed to exploit opportunities and results in incremental innovation. The second type abandons existing routines to create new opportunities and results in radical innovation (Volberda, 1998, p.73). The type of innovation required and the concomitant type of flexibility called for are determined by the relative stability/volatility in the organisation and its environment.

6.5 A classification framework for flexibility

From the previous section it is clear that a wide variety of meanings are attached to the term "flexibility". The definition of flexibility adopted for purposes of this thesis is broad so as to encompass the different aspects and types of flexibility. A classification framework of the different focuses of flexibility is therefore warranted to clarify and emphasise the aspects of the definition and serve as a guideline to management, employees and accountants in designing a flexible organisation.

In developing any classification framework, the purpose of classification should be considered. In this regard, Hayakawa (1964, pp.215,217) observed:

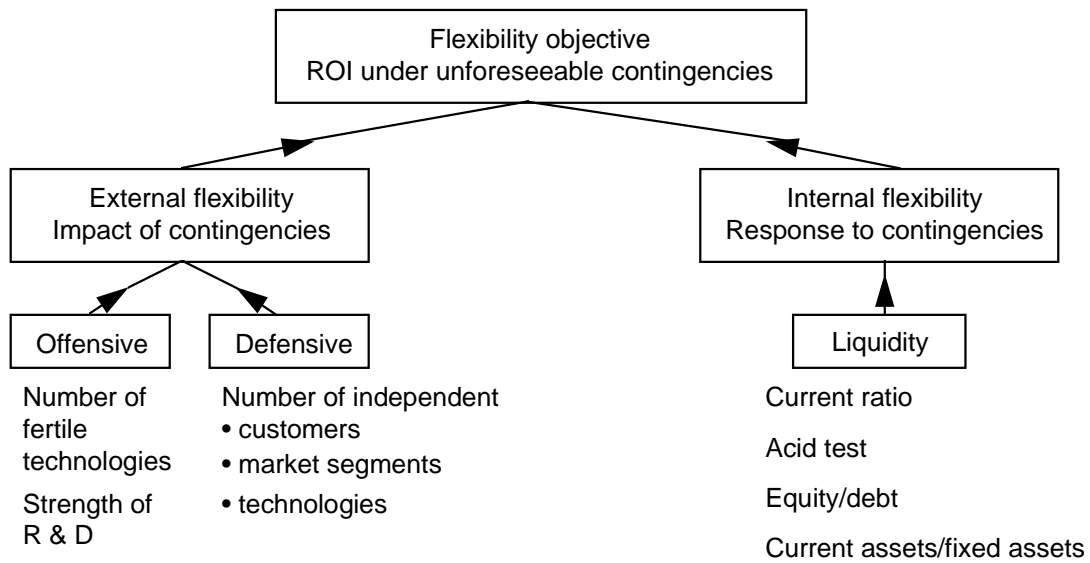
“What we call things and where we draw the line between one class of things and another depend upon the interest we have and the purpose of the classification. Classification is not a matter of identifying essences as is widely believed. It is simply a reflection of social convenience and necessity – and different necessities are always producing different classifications.”

The purpose of a classification framework for the construct of flexibility is to identify how flexibility can be created, implemented, utilised and measured in the organisation.

6.5.1 Literature survey

A number of *classification frameworks* on flexibility are proposed in the literature. Different bases can be used to develop a comprehensive classification framework of flexibility. Ansoff (1988, p.42) bases his framework on the relationship which exists between the organisation and the environment. He suggests that flexibility be classified as external flexibility if achieved through a diversified pattern of product–market investments and as internal flexibility if it concerns liquidity of the firm’s resources. This is the traditional yardstick of internal flexibility. *Internal flexibility* occurs where the business seeks to create a cushion against catastrophe. Through internal flexibility management attempts to control the environment with under-utilised assets or “slack”. This represents a passive rather than an active approach to the creation of flexibility. *External flexibility* is achieved through product–market postures that are sufficiently diversified to minimise the effect of a catastrophe and/or to put the firm into areas in which it can benefit from likely breakthroughs. External flexibility is subdivided into defensive flexibility (averting catastrophe) and aggressive flexibility (benefiting from breakthroughs). In volatile times more value is attached to aggressive flexibility. The Ansoff classification, based on the relationship existing between the organisation and its environment, is illustrated in figure 6.3.

Figure 6.3 : Hierarchy of the flexibility objective



Source: Ansoff, H. I. (1988) *The new corporate strategy*, New York: John Wiley, p.44.

The liquidity ratios suggested in figure 6.3 have become dated. Research has shown that the current and acid test ratios are poor indicators of liquidity and that ratios on cash flows and business cycles are more reliable.

Trigeorgis (1993) bases his classification framework on an actor approach, that is the capabilities and choices available to the management (actors) of the organisation in response to change. Flexibility is classified in terms of the real options available to management in response to future threats and opportunities and the seven categories he identifies are illustrated in figure 6.4.

Figure 6.4 Options of flexibility University of Pretoria.etd

Category	Description
Option to defer	Management holds a lease on (or an option to buy) valuable land or resources. It can wait (x years) to see if output prices justify constructing a building or plant, or developing a field.
Time to build option (staged investment)	Staging investment as a series of outlays creates the option to abandon the enterprise in midstream if new information is unfavourable. Each stage can be viewed as an option on the value of subsequent stages, and valued as a compound option.
Option to alter operating scale (e.g., to expand; to contract; to shut down and restart)	If market conditions are more favourable than expected, the firm can expand the scale of production or accelerate resource utilisation. Conversely, if conditions are <i>less</i> favourable than expected, it can reduce the scale of operations. In extreme cases, production may temporarily halt and start up again.
Option to abandon	If market conditions decline severely, management can abandon current operations permanently and realise the resale value of capital equipment and other assets in secondhand markets.
Option to switch (e.g., outputs or inputs)	If prices or demand change, management can change the output mix of the facility ("product" flexibility). Alternatively, the same outputs can be produced using different types of inputs ("process" flexibility).
Growth options	An early investment (e.g. R&D, lease on undeveloped land or oil reserves, strategic acquisition, information network/infrastructure) is a prerequisite or link in a chain of interrelated projects, opening up future growth opportunities (e.g. new generation product or process, oil reserves, access to new market, strengthening of core capabilities). Such as interproject compound options.
Multiple interacting options	Real-life projects often involve a "collection" of various options, both upward-potential enhancing calls and downward-protection put options present in combination. The combined option value may differ from the sum of separate option values, i.e. they interact. They may also interact with financial flexibility options.

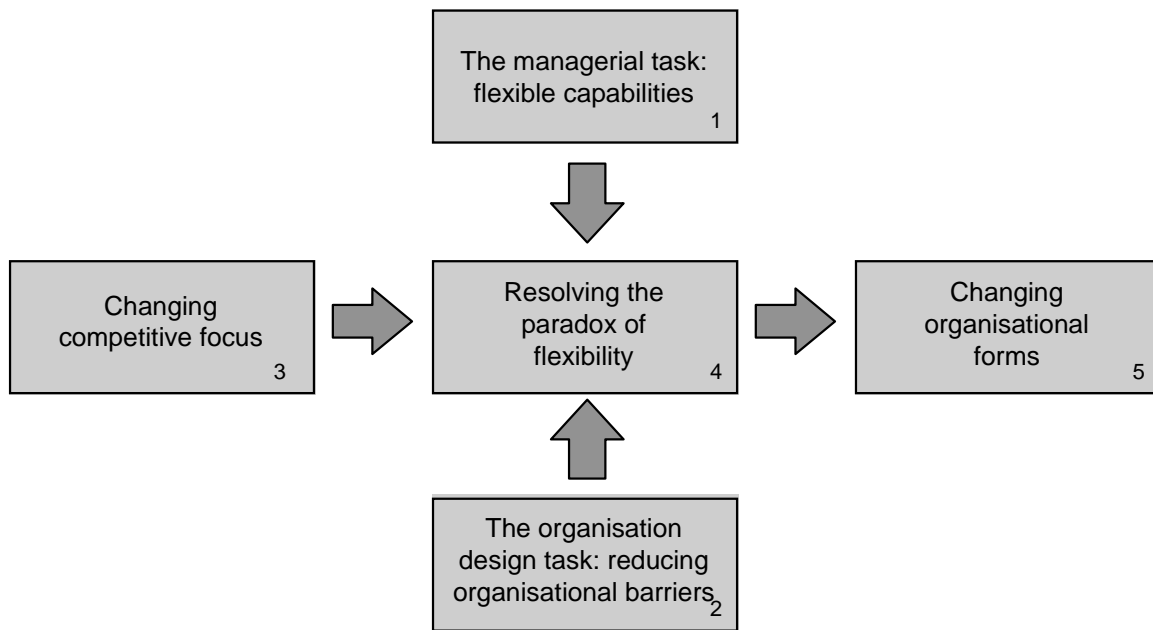
Source: Trigeorgis, L. (Autumn, 1993) Real options and interactions with financial flexibility. *Journal of Financial Management*, vol.22, no.3, pp.203-224.

Pasmore (1994) adopts a framework based largely on the functional approach. He focuses on the main areas in which flexibility is required in an organisation during periods of rapid change, as the basis of classification. He identifies the main areas of focus for creating flexibility in an organisation as

- people;
- technology;
- work;
- thinking;
- managers; and
- organisational design.

These categories are discussed in more depth in section 6.6.

Volberda (1998) proposes a strategic framework of flexibility that focuses on the creation and implementation of flexibility in organisations. He identifies three forces that can resolve the so-called paradox of flexibility, namely management capabilities, organisational design and the effect of changing competitive forces. Management capabilities determine whether management can respond at the right time in the right way. The organisation design task establishes whether the organisation can react at the right time in the directed manner. The levels of competition determine the nature and extent of flexibility. In response to flexibility, organisations generate a variety of organisational forms. The influence of these three forces on change in organisational forms to accommodate flexibility, is illustrated in figure 6.5.

Figure 6.5 : A strategic framework of flexibility

Source: Volberda, H. W. (Autumn 1998) *Building the flexible firm: how to remain competitive*, New York: Oxford University Press, p.6.

Aaker and Mascarenhas (1984) propose a framework that is based on the approaches available to companies for the creation of flexibility. They identify six functions in which flexibility can be created, namely research and development, finance, operations, marketing, the international field and in managerial/structural areas. Three methods for increasing flexibility are identified, namely diversification, investment in underutilised resources and reducing commitment of resources to specialised use. The two dimensions are presented in a matrix form in figure 6.6.

Figure 6.6 : Illustration of approaches to increasing flexibility

Method of increasing flexibility			
Functional area	Diversification strengths	Investment in underutilised resources	Reducing commitment of resources to specialised use
Research and development	Several technologies must underlie firm's position. Employ multiproduct programmes.	Maintain R&D capability that can be used when needed.	Use a policy of being a technological follower.
Finance	Maintain transferability of funds among SBUs.	Liquidity of assets. Emergency borrowing and stock-issuing power.	Use the sale and leaseback of assets. Use financing instruments that permit options at the applicable interest rate.

Operations	Produce from multiple plants in different locations.	Use general purpose manufacturing facilities and equipment. Use inventories as a buffering mechanism. Maintain excess capacity.	Avoid vertical integration. Subcontract work. Maintain an assembly operation. Use small machines. Use multiple suppliers. Use temporary workers.
Marketing	Participate in multiple product markets. Develop capability of using multiple distribution channels.	Develop "excess" customer loyalty to buffer competitive actions.	Avoid reliance on few customers. Follow product leaders. Do not build an umbrella name.
International	Maintain a presence in several countries.	Maintain duplicate production facilities for international sourcing.	Use exporting or licensing to enter foreign markets rather than local production.
Managerial/structural	Decentralise decision making. Give subunits greater discretionary authority.	Maintain "organisational slack". Design operating procedures to handle environmental change.	Maintain conflicting perspectives in organisation. Do not rely on few channels of communication with external environment. Use a policy of role overlapping.

Source: Aaker, D. A. & Mascarenhas, B. (Autumn, 1984) The need for strategic flexibility. *The Journal of Business Strategy*, vol.5, no.2, p.75.

6.5.2 Proposed classification framework

The purpose of this thesis is to propose a classification framework for organisations that may also serve as a basis for the development and measurement of flexibility. The categories selected should therefore be clearly identified and be capable of being measured. In the majority of the literature and research on flexibility a functional approach is adopted, which means that some function within the organisation, such as production flexibility, (Abernethy & Lillis, 1995; Johnson, 1992), financial flexibility (Donaldson, 1971; Heath, 1978) and marketing flexibility (Harrigan, 1985) is emphasised. These different functions of the organisation form a suitable basis for developing a classification framework for the production of accounting information on flexibility.

The selected categories of the classification framework proposed in this thesis are drawn from the available literature. The following six categories were identified:

- Production flexibility;
- Marketing flexibility;

- Financial flexibility; University of Pretoria.etd
- Informational flexibility;
- Geographical flexibility;
- Human, cultural and organisational flexibility.

Of the six selected qualities the first five are based on a functional approach while the latter category is derived from the actor approach which focuses on the traits and qualities of people and organisations that are required to be flexible. Of the six categories, the latter is the broadest and most difficult to measure.

This classification framework does not attempt to reflect fully the complexities of reality. As Hakansson (1978) puts it, all models are abstractions, representations or simplifications of some reality under study, and thus of necessity cannot capture everything about that reality without themselves becoming complete reproductions of the reality. The proposed classification scheme is thus a simplification of reality. The categories are not mutually exclusive and identified categories will interact with one another. To illustrate, production flexibility may be constrained by a lack of financial flexibility, while increased production flexibility may encourage and complement marketing flexibility. These categories of flexibility can also conflict with each other. Management is then required to obtain a balance between gaining from one category and losing from another. For example, assume a company has cash flow problems and has used all available lines of credit. It may have to sell assets, such a machinery, to raise the necessary funds. The gain in financial flexibility is at the cost of capacity and production flexibility, which may in turn have a negative influence on its marketing flexibility.

Ansari *et al.* (1997) suggest that there are three strategic aspects namely quality, cost and time on which organisations compete simultaneously in production. Quality concerns the customer's experience of the product, cost the resources expended to create the product or service, while time concerns the speed with which the products or services are supplied. Slack (1983) identifies another strategic aspect, namely range. A production unit is namely more flexible if it can handle a wider range of possibilities. These strategic aspects do not, however, apply only to a production

environment but is applicable to all functions in the organisation in which flexibility is created. Flexibility arises through the ability to outperform competitors in these four aspects. The six categories and four strategic aspects and their interactions with one another are illustrated in figure 6.7.

Figure 6.7 : A classification framework for flexibility

		Strategic aspects			
		Quality	Cost	Time	Range
Categories of flexibility	Production				
	Marketing				
	Financial				
	Informational				
	Geographical				
	Human, cultural and organisational				

Source: Own observation.

A limitation of adopting a mainly functional approach in a classification framework is that the functions may be viewed as discrete parts, functioning independently instead of being part of a whole – the organisation. The danger of such an approach is that the creation of flexibility in one function may result in an increase in the overall inflexibility of the organisation. Hamel and Prahalad (1989) for example note that creating labour flexibility by adjusting the size of the workforce, may not lead to the creation of flexibility at all, but rather serve to maintain inflexibility. It is therefore important not to view the flexibility process as being restricted to only certain aspects or functions of the organisation. Volberda (1998) contends that it is a process for integrating all the essential functions, organisational units and resources needed to manage the transition from a less flexible to more flexible organisation. The main challenge facing management is to manage the interaction of this multidimensional and complex construct in the organisation.

Each of the six identified categories are discussed in the following section and examples and diagrams are used, where applicable, to explain the focus and scope of each. The four strategic aspects of flexibility, namely quality, cost, time and range, are discussed with reference to each of the functional categories.

6.5.2.1 Production flexibility

The category “production” refers to the flexibility that an organisation can obtain through the input, processing and output of goods and services. Johnson (1992) describes this category as the production – immediately or within a period of time that satisfies the customer – of exactly what the customer requests and specifies that the process should be from scratch (not from inventory or by assembling to order). He adds that the product or service must be sold at a price similar to that of a mass producer who sells it off the shelf. A variety of methods, including production equipment, product design, work organisation, planning and control procedures, materials management and information technology, can be utilised for the creation of production flexibility (Gerwin, 1993).

The term manufacturing flexibility is often used instead of production flexibility in the literature. Abernethy and Lillis (1995) note that manufacturing flexibility is reflected in a firm’s ability to respond to market demands by switching from one product to another through co-ordinated policies and actions and a willingness or capacity to offer product variations. Parthasarthy and Sethi (1993) call manufacturing flexibility a strategy aimed at the maximisation of differentiation.

The somewhat broader term “production” rather than “manufacturing” is used in the classification framework to encompass service-oriented firms as well as the relationship with suppliers and customers. This definition is in accordance with the extended view of the enterprise. In terms of this view organisations depend on their suppliers, dealers and recyclers to meet the quality, cost and time requirements of their customers (Ansari *et al.*, 1997). The interdependencies of these groups are also referred to as a firm’s value chain.

Several subcategories of production flexibility are proposed in the literature. Gerwin (1993, p.398) suggests the following seven categories:

- *Mix flexibility* which is achieved through product diversity in product lines and variations to products;
- *Changeover flexibility* is the ability to quickly substitute new products for existing ones;
- *Modification flexibility* is the ability to implement minor design changes to given products to meet customised demands;
- *Volume flexibility* permits increases or decreases in production levels in response to changes in customer demands;
- *Rerouting flexibility* is the ability to adjust the sequence of machines through which a part flows so as to meet customer due dates;
- *Material flexibility* is the ability to handle unexpected variations in inputs, such as materials from suppliers;
- *Flexibility responsiveness* is the ability of the manufacturing unit to co-ordinate and integrate these six categories, and to change flexibility types, ranges and times.

Muralidhar (1992) also identifies “*mix flexibility*”, a subcategory of manufacturing flexibility, and defines it as the ability to switch from the production of one product to another with minimal stoppage time through the use of flexible technology.

Parthasarthy and Sethi (1992) identify two further subcategories of manufacturing flexibility, namely *scope* and *speed flexibility*. The former involves competing on product variety and volume flexibility, while the latter concerns frequent new product introductions and speed in innovation.

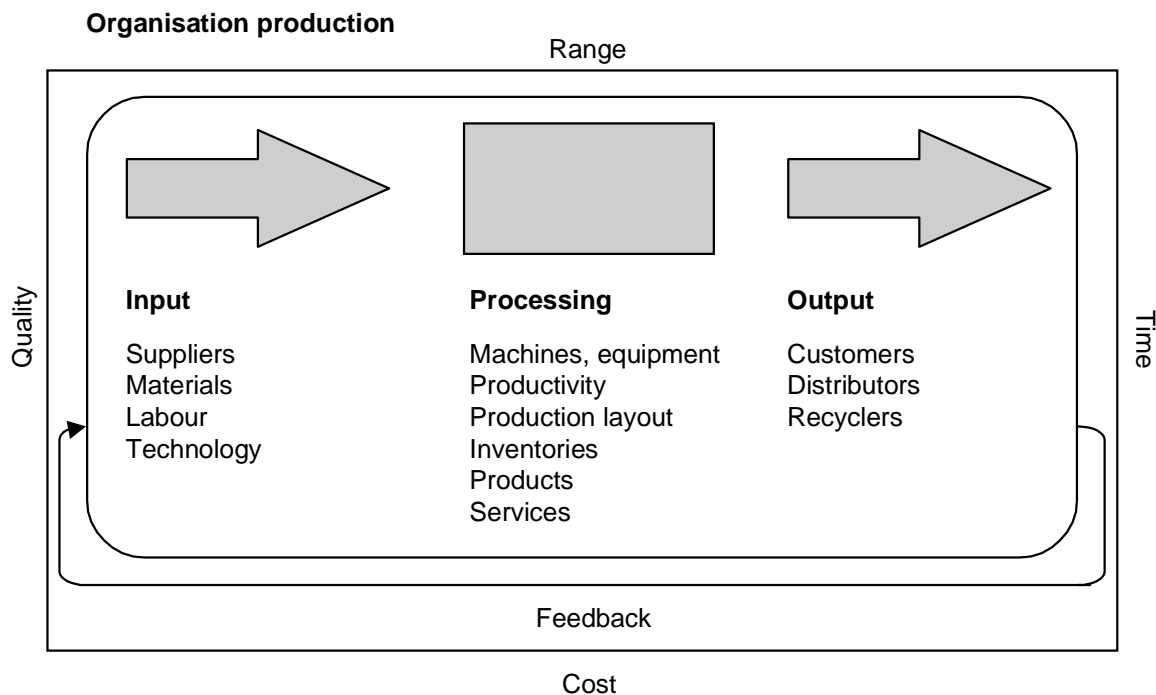
The achievement of production flexibility requires close and continuous attention to the following building blocks of the process:

- *Input* related aspects: Selection of and relationship with suppliers, lead times to delivery, quality of materials delivery and price of materials;

- *Processing* related aspects: Manufacturing lead times, machine setup and changeover times, waste, productivity, machine capacity and usage, quality control, production line efficiency, units produced, product design, scheduling, product customisation, product mix, product maturity and use of technology;
- *Output* related aspects: Customer relations, delivery networks, customer complaints and suggestions, sales returns, quality problems, delivery lead times and pricing of products; and
- *Repositioning* of production process: This relates to feedback from customers, distributors and recyclers to reposition production process.

The production flexibility building blocks are illustrated in figure 6.8. They are based on the extended view of the production function used in the literature on value chains. As mentioned earlier, the interdependencies between the organisation, suppliers, dealers and recyclers are part of a firm's value chain and represent the idea of an expended enterprise that is involved in serving customers (Ansari *et al.*, 1997).

Figure 6.8 Production flexibility



Source: Own interpretation.

Johnson (1992) suggests that ~~Unproductive Practices~~ production flexibility is achieved by continuously removing constraints. Constraints are practices and assumptions that cause delay, excess and variation in processes, which in turn reduces production flexibility. The following are examples of constraints to production, the added work they cause and the procedures that may eliminate these constraints and thus improve production flexibility:

- *Setup and changeover:* Long lead times and setting up and changing over machinery create a demand for added scheduling, forecasting, buffer inventory and increase production lead times. Targeting setup and changeover times by improved use of technology, more sophisticated machinery and better training of employees result in a chain reaction that eliminates excessive work, space, time and costs. All these factors serve to increase the production flexibility of the firm.
- *Work layout:* Poor layout of systems, plants and processes create a demand for handling, transporting, work-in-progress inventory, inspection, rework, unscheduled maintenance and additional setup time. The work layout is improved by mapping the flow of work and studying the opportunities for simplifying the process with the aim of locating upstream suppliers close to downstream users. The simpler the layout the easier it is to adapt to changing circumstances and therefore the higher the production flexibility obtained by the organisation.
- *Product design:* Poor product design generates a demand for parts ordering, work in progress, rework and after sales service costs, repair and lost customers. The manufacturing process should be simplified by for example reducing the number of parts required and the subassembly and standardisation of parts. A simplified product design improves the production flexibility of the organisation as it facilitates the adaptation of products to the changing requirements of customers (Johnson, 1992; Ansari *et al.*, 1997).

Production flexibility is achieved by continuously eliminating constraints that cause waste, delay, variations, excesses and additional work which in turn cause an increased use of quality, cost and time. An organisation with a high level of

production flexibility will gain competitive advantage by supplying customised goods and services of a high quality, faster and more cost effectively to its customers than any of its competitors. The range of options available to a production unit in response to competitors' movements increases their production flexibility further. One production unit is more flexible than another if it can create and handle a wider range of possibilities (Gerwin, 1993).

6.5.2.2 Marketing flexibility

Marketing flexibility refers to the ability of an organisation to enter and leave markets and to position itself within existing and new markets. The aim is to achieve such levels of marketing flexibility that the organisation can compete successfully in global markets. A marketing flexible organisation gains competitive advantage as a result of its ability to change and reposition itself rapidly within competitive global markets. Prahalad and Hamel (1990) submit that such organisations are able to invent new markets quickly, enter emerging markets and dramatically shift patterns of customer choice in established markets. These organisations monitor the levels of marketing flexibility of its competitors to assess its risk of losing market share or of being replaced by a competitor, and also to identify opportunities for expansion. The more flexible the competitors in a market, the more difficult it will be for an organisation to maintain its market share. Competitive advantage in global markets stems from knowing and outperforming your competitors.

Marketing flexibility is based on two capabilities. First, the ability to enter and leave markets, to open new businesses and close others and to introduce new products and phase out others. Secondly, it refers to the ability to identify, implement and change the generic competitive strategies of the organisation. The first capability allows an organisation to enter or leave existing markets or to create new markets as customer preferences, cost barriers, compositions, attributes and competition within the industry change. Such a flexible company will exploit opportunities in the market more quickly and cost effectively than its competitors, will constantly screen the environment for opportunities and threats and will gather information on its existing and potential customers and markets and existing and future industries. The organisation will also gather information on, and analyse and monitor its competitors

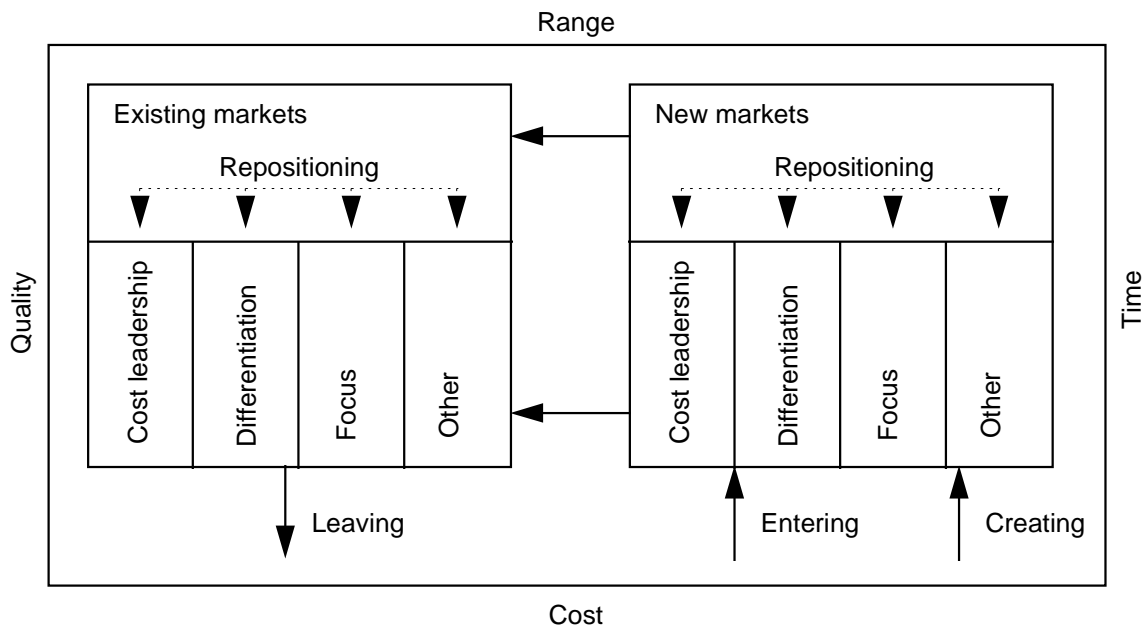
in both existing and potential ~~new markets and use~~ competitive benchmarking to improve its competitive stance.

The second capability which creates marketing flexibility, originates from the competitive strategies adopted within existing markets. Porter (1980, p.35) identifies three successful generic strategies to outperform competitors in markets.

- *Overall cost leadership:* This strategy requires aggressive construction of efficient scale facilities, vigorous pursuit of cost reductions. Low cost relative to competitors become the theme of the strategy, but not at the cost of quality and service.
- *Differentiation:* The second generic strategy refers to a unique product or service which is offered by the firm and for which customers are willing to pay, such as a brand name, after sales service or special features.
- *Focus:* This is a generic strategy which entails focusing on meeting the specific needs of a particular group of buyers (Porter, 1980).

Marketing flexibility is the capability of the management of an organisation to change its generic strategies and reposition itself in response to unexpected or anticipated opportunities or threats in its markets, more quickly and cost effectively than competitors while retaining the quality of its products and services. For example, the decline and exit of an overall cost leadership firm from a market may create an opportunity for a marketing flexible company to change from a strategy of focus to a strategy of cost leadership or to combine both. Similarly, the entrance of a new competitor to the focus strategy section of the market may force an existing firm to change its strategy to differentiation or to exit the market. The wider the range of options available to the management in responding to such market changes, the more flexible it is deemed to be. The two capabilities of marketing flexibility and the four strategic aspects of flexibility are illustrated in figure 6.9.

Figure 6.9 : Marketing flexibility



Source: Own interpretation.

The lines in the above figure refer to the entrance and exit barriers or mobility barriers that have to be overcome when entering, creating, leaving or repositioning within existing or new markets. The four strategic elements of time, cost, quality and range (Ansari *et al.*, 1997; Slack, 1983) also apply to marketing flexibility. A flexible organisation will outperform competitors in markets because of its ability to change its market positions more rapidly and cost effectively while maintaining high quality levels. The range of markets and the options (size, feasibility) available to management to effect these actions are functions of its level of flexibility.

The other generic strategies mentioned in figure 6.9 originate from the introduction of sophisticated technology such as Flexible Manufacturing Systems (FMS) which facilitates the successful combination of generic strategies. The use of technology can result in a substantial reduction in production costs while producing small customised runs (Jaikumar, 1986). The overall cost leadership and the differentiation strategies may for example be combined through the use of technology. Porter (1980, p.133) notes, however, that entry barriers not only protect firms in a strategic group from entry by firms outside the industry, but also provide barriers to shifting position from one strategic group to another. He calls the factors that deter such movement of firms, mobility barriers and notes that the firms in strategic groups with

high mobility barriers will have greater profit potential than those in groups with lower mobility barriers. Mobility barriers therefore act as constraints to marketing flexibility.

However, Harrigan (1985, p.3) argues that barriers to entry and exit of markets represent mental baggage that managers carry with them into problem solving. They are a mind set that inhibits firms' strategic or marketing flexibility. Marketing flexibility is thus also achieved by overcoming the physical and mental constraints imposed by mobility barriers, so that the ability and willingness to move between and within markets are enhanced. This category of flexibility can be used aggressively to raise mobility barriers of a flexible company's existing markets that prevent the entrance of new competitors.

Marketing flexibility thus allows an organisation to reposition itself rapidly and cost effectively between and within markets, ahead of its competitors. This enables a flexible company to reap the benefits of new opportunities or to avert the negative impact of anticipated threats while still maintaining its quality and cost efficiency. It therefore becomes an important vehicle for competitive advantage in highly competitive global markets.

6.5.2.3 Financial flexibility

The third category, namely financial flexibility, is defined by the FASB (1984) as the ability of an enterprise to take effective actions to alter the amounts and timing of future cash flows so that it can respond to unexpected needs and opportunities. Donaldson (1971) views financial flexibility from the perspective of balancing cash flows. It can also arise from shorter business and cash flow cycles. Because of the random element in business activity, it is unlikely that the current inflow of funds resulting from past decisions and actions will be exactly equal to the current outflows. Left to behave without interference, one can expect cash flows to be frequently, if not continuously, out of balance (i.e. show an excess or shortfall) depending on the vigour of present actions compared with those of the past (Donaldson, 1971, p.49). This somewhat narrow definition tends to emphasise the balancing of cash at one point in time rather than viewing it as a continuous process of imbalance. Cash imbalances result in either cash surpluses which should be

invested or cash deficits which should be financed by existing or potential lines of credit.

Financial flexibility encompasses, however, more than the balancing of cash flows. Other important aspects such as cash turnover, the tempo of raising or generating cash, the sources and applications of cash, the trends or cycles in cash management and the timing and the uncertainty of future cash flows are all aspects which influence financial flexibility. The role of accounting information system has been to report *ex post* on the balancing of these cash flows. The role of financial flexibility in an organisation is to plan for, create and prioritise sources of cash for use in responding to especially unexpected future opportunities and threats.

The broad scope of financial flexibility may be explained through its relationships with profitability, cash flow, solvency and liquidity. Corporate treasurers recognise the relationship between cash flows, liquidity and financial flexibility in that they regard liquidity as a multidimensional concept that includes both the short-term ability to meet immediate cash needs and the ability to raise cash in the intermediate and long run (FASB, 1980b, p.46). According to Heath (1978, pp.2, 23) liquidity and financial flexibility are narrower concepts that are supported by the underlying concept of solvency. He notes that profitability and solvency are also interdependent, with solvency depending on long-term profitability. However, this correlation between profitability and solvency does not necessarily exist in the short term.

Hendriksen and Van Breda (1992, p.272) hold a different view of the relationship between solvency, liquidity and financial flexibility. Although they agree that the three concepts are related, they hold that financial flexibility is a broader concept than solvency, and solvency in turn is a broader concept than liquidity. They thus propose a hierarchical relationship with financial flexibility determining the extent of future solvency and liquidity, especially in the medium to long term. Unfortunately, Hendriksen and Van Breda do not address the relationship existing between profitability and financial flexibility. The following example will illustrate this relationship: If all resources in firm A are used optimally and to their fullest extent in theory, the wealth created in the firm will be maximised and profitability may be optimised. In practice, however, the management of firm A probably operates at

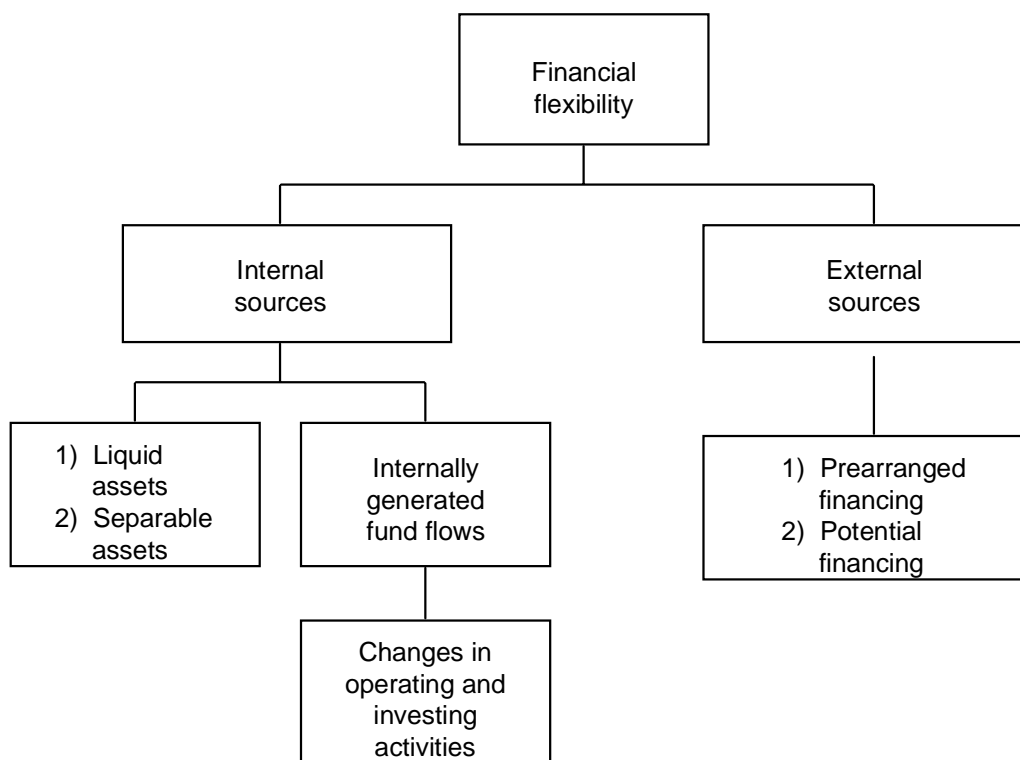
suboptimum wealth creation levels as a result of the “slack” which arises because all available resources are not fully utilised (Donaldson, 1971). As unexpected cash shortfalls have serious repercussions for the firm and themselves, managers will attempt to maintain a reserve or cushion of financial resources. The nature and amount of these resources depend on managers’ predictions of any potential cash flow deficiency (AICPA, 1993, p.108) as well as their perceptions of environmental volatility and their attitude to risk. This behaviour of the management of firm A shows that they are willing to earn suboptimum profits in order to gain financial flexibility by retaining unused resources to deal with future uncertainties. An inverse relationship therefore exists between profitability and financial flexibility, in that an increase in financial flexibility is often gained at the expense of profitability. The aim of management should be to maintain a healthy balance between profitability and financial flexibility, so that neither is threatened and the overall risk rate of the organisation declines.

Financial flexibility is gained from resources both in and outside the financial statements. Heath (1978, p.21) classifies the resources of financial flexibility into five categories:

- Borrowing money
 - Directly, by borrowing from banks and selling bonds, commercial paper and so forth;
 - Indirectly, by delaying payments to trade creditors, extending due dates of loans and so forth;
- Liquidating assets
 - Directly, by selling marketable securities, factoring receivables, selling (possibly combined with leaseback) plant and equipment and so forth;
 - Indirectly, by failing to replace inventory as it is sold through normal trade channels, failing to replace manufacturing assets as they are consumed in operations and so forth;
- Reducing costs;
- Reducing dividends;
- Issuing capital stock.

Similar classifications of cash resources are provided by Donaldson (1971) and Koornhof (1988). The FASB (1980b, p.109) provides a somewhat different classification by dividing the sources of financial flexibility into internal and external sources. Internal sources are those that are generated in the organisation by selling assets or generating cash flows. External sources are those arranged outside the organisation. This is illustrated in figure 6.10.

Figure 6.10 : Sources of financial flexibility



Source: FASB (1980b): Discussion Memorandum, *Reporting funds flows, liquidity and financial flexibility*, New York: the Board, pp.107-123.

This classification corresponds to the classification used in the cash flow statement in financial statements reflecting operating, investing and financing activities of enterprises.

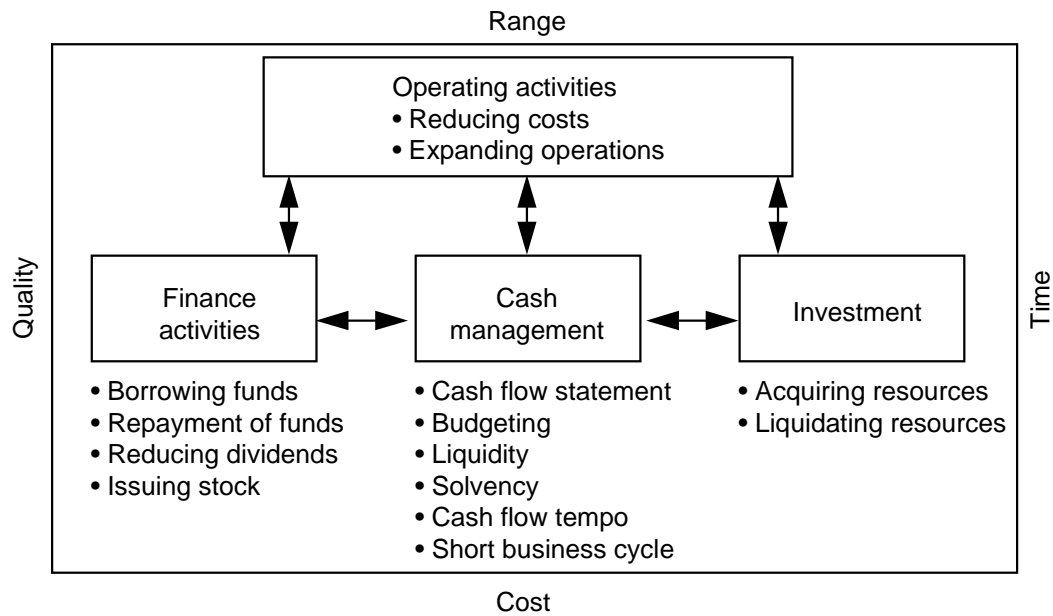
The following are of particular importance in the use of these resources:

- The amounts of cash that can be generated;

- The timing of the realisation of the amounts;
- The costs attached to realising the amounts;
- The impact that the redirection of resources may have on the quality of products and services;
- The impact on the risk profile of the organisation; and
- The level of certainty that these resources will be available for realisation at the correct time in the future.

The more resources that a company has available to generate cash, the wider its range of options and the more financially flexible it is considered to be. The flexibility is not created only through the number of options available but also the feasibility of the options. Several resources, such as cash balances, appear to be a natural source of financial flexibility. In practice, however, large portions of the current cash balance of organisations is required to support working capital and is not available for the creation of financial flexibility. Specialised machinery, on the other hand, may not appear to be a ready source of cash, but demand and supply in the market may render such an asset a valuable source of cash. Alternatively the organisation may use the asset in a sale and leaseback arrangement or as security to raise finance.

Financial flexibility refers to the ability of an organisation to raise or invest cash in sufficient amounts at the correct time and in the correct amount to balance expected and unexpected cash surpluses or shortages caused by future events. The important elements for the creation of financial flexibility in organisations are illustrated in figure 6.11.

Figure 6.11 : Financial flexibility

Source: Own observation.

6.5.2.4 Informational flexibility

The category informational flexibility applies to the information in organisations, which is used in decision making. It refers to the ability of management to change the information system to meet the changing needs of users of information quickly and cost effectively without losing its quality and integrity. A flexible information system will therefore be one which compiles relevant, timeous and decision-useful information more quickly, accurately and cost effectively than the systems of competitors.

The term “flexibility” in relation to accounting information, is perceived largely in a negative sense. Standard setting bodies often oppose flexibility in reporting as it poses a threat to the application of accounting standards and may result in information that lacks comparability and consistency. Their aim is rather to harmonise, and where possible, to standardise accounting practices so that similar transactions and events are treated similarly by all enterprises. Consequently, financial reports have taken on the appearance of compliance documents rather than communication tools (AIMR, 1993, p.79). This compliance approach is in line with a closed system approach, while a communication approach adopts a more open

system approach. Standardisation tends to make information systems, and in particular accounting systems, more rigid. Johnson and Kaplan (1991) suggest that Management Accounting failed to develop because it was dominated by the rigid standardisation approach of Financial Accounting. Peters (1991) argues that a fixation with financial measures contributes further to the current inflexibility of information systems.

The output of information systems and consequently their input too, should be determined by the changing needs of their users. Information systems should become more client centred if they are to become more flexible. Everyone in the organisation should constantly be thinking what information he or she needs to do the job and to make a contribution (Drucker, 1988). National and international standard setters, regulators and accountants should increase their focus and research on the changing information needs of users. Users should be encouraged to work with standard setters to increase the level of their involvement in the standard-setting process (AICPA, 1994a). The changing needs of both internal and external users can be met by one flexible information system which constantly evolves to align itself with the changing demands. The accounting information system has the infrastructure to fulfil the role, provided it becomes an open system which interacts dynamically with its environment.

The use of technology to communicate information within and outside the organisation can be used to introduce more flexibility into the process. Information software should be developed with flexibility in mind. Therefore programming should be designed to accommodate changes, alterations and improvements quickly, easily and cost effectively, while still ensuring quality of information. Organisations should invest in flexible hardware configurations, which can be adapted to their changing information needs. Pasmore (1994) says that informational design alternatives should emphasise flexibility in technology to allow for unforeseen changes in customer demands, industry developments or technological upgrades.

Unfortunately some of these information systems become so complex that they actually introduce further inflexibility into the organisation. Jaikumar (1986) notes that in using FMS, US companies designed software systems for a much greater level of

flexibility than their companies were prepared to use. The greater complexity resulted in more bugs in the system, fewer people understanding the system and a general unwillingness to tinker with the system. These complex information systems were thus designed to increase informational flexibility but, in practice, resulted in a decline. In this regard, Peters (1991, p.589) finds it ironical that the need for flexibility in an increasingly complex environment requires systems to be simplified. He believes that organisations should develop simple systems that encourage participation and understanding by everyone, and support initiative taken on the front line. Organisations should furthermore measure what is important to the business and in particular shed the distracting biases of traditional cost accounting procedures.

Rigidity is also introduced into organisations through the incorrect use of technology. Instead of selecting decision-useful information, informational systems may produce an excess of information that cannot be used productively as it results in an information overload. Ernst & Young (1995) warns that although communication processes are becoming faster, more powerful and more flexible, they are also becoming increasingly fragmented. Concerns have been raised that the business world's capacity to transmit information is greater than its capacity to analyse and interpret it.

To gain informational flexibility, organisations should

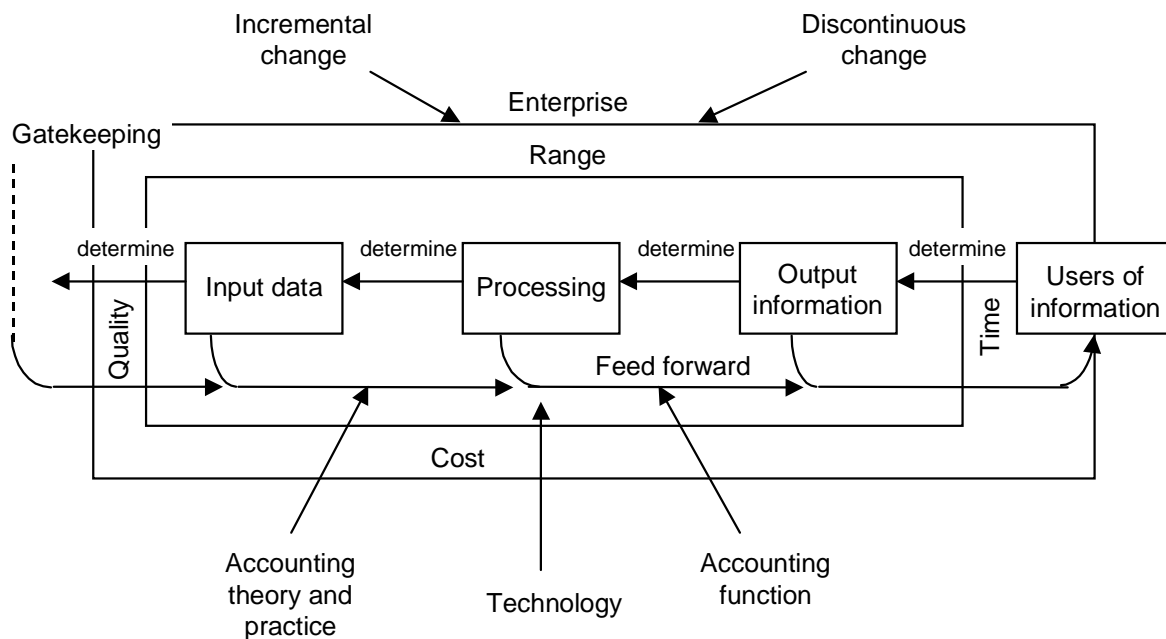
- keep systems simple;
- limit information to that which is useful;
- develop systems which can adapt to changing needs;
- be willing to experiment;
- focus on the needs of users rather than on the minimum information required by legislation and accounting statements;
- improve the communication process with users, through the use of technology;
- educate stakeholders.

The above aspects should contribute to cost effective information of a high quality being provided timeously to the correct users, as well as more quickly and efficiently than those of competitors. This should result in better informal decision making by all stakeholders. The information system should be able to supply information from a range of users and a range of decision options.

To support a flexible information system the accounting function, as the main generator of information in an organisation, should be decentralised to increase its exposure to changes in the environment. Accountants, as members of cross-functional teams, should align the information output to the needs of specialised and skilled employees. A flexible information system is supported by flexible accountants who are willing to experiment with information and are comfortable with change. A further important element of a flexible information system is to create a willingness among accountants to critically re-examine accounting practice and theory when its application results in information which does not meet the demands of its clients.

Informational flexibility in the organisation is illustrated in figure 6.12.

Figure 6.12 : Informational flexibility



Source: Own observation.

6.5.2.5 Geographical flexibility University of Pretoria.etd

The category of geographical flexibility refers to the flexibility available to multinational companies that operate in more than one country. Muralidhar (1992) identifies two types of flexibility in this category:

- *Financial* flexibility, namely the ability to shift profits to favourable tax locations when tax regimes are changing; and
- *Real* flexibility, that is the ability to switch capacity utilisation to the lowest cost location when domestic costs and exchange rates are volatile.

Aaker and Mascarenhas (1984) call this type of flexibility international flexibility and identify it as the ability of enterprises to use duplicate production facilities in different countries as well as export and licensing arrangements in foreign markets to reposition themselves.

International or geographical flexibility is only available to companies that operate in more than one country. These companies can exploit asymmetries and inequities in tax regimes, factor costs and exchange rates of different countries by shifting taxable income or changing capacity utilisation between countries. It can be viewed as a type of hedge against unfavourable practices in a host country. Kogut (1985) notes that multinational firms have flexibility, which permits them to hedge against uncertainty over future exchange rates, competitive moves or government policy. A flexible company will scan the environment continuously for exploitable inequities between the countries in which the company operates. Geographical flexibility also arises from the ability of organisations to change their status in foreign countries from subsidiaries and branches to joint ventures or export or licensing arrangements (Aaker & Mascarenhas, 1984).

Muralidhar (1992) shows that the mere existence of asymmetric and changing tax rates provide a sufficient condition for a unational firm to invest abroad, possibly even in a relatively high tax jurisdiction. By investing abroad management obtains control over the environment and in particular aspects such as tax regimes, labour

practices and currencies. Through geographical flexibility it can internalise tax management, enabling it to shift part of its profits from a high tax to a low tax jurisdiction, usually by means of transfer pricing. A multinational enterprise is therefore afforded the opportunity of increasing the firm's expected value above that of an exact set of purely national firms. Investors may find that investing in multinational firms provide more value than purchasing shares in a replicating set of national firms in two countries (Muralidhar, 1992, p.20). Geographical flexibility should therefore be considered when the value of multinational firms are assessed, a practice which has not been adopted by many transactors on capital markets. It follows that many multinationals may consequently have been undervalued. It is to be expected that the greater the ability and willingness of management to move profits in the face of volatile exchange rates and adverse labour practices and tax regimes, the greater the benefit attributable to geographical flexibility.

Geographical flexibility refers to the ability of the management of a MNE to shift resources between countries with different tax regimes, factor costs and exchange regulations. By creating a portfolio of "put" and "call" options, especially in times of volatility, management can decide where to produce goods and render services and where to pay taxes, so that the overall wealth of the enterprise is enhanced. The development of geographical flexibility should obviously be based on strategic aspects of time, cost, quality and range. Moving business operations between countries should therefore be cost effective, be effected within a reasonable time span and should not affect the quality of the products and services rendered by the organisation. The greater the range of options available to management to utilise geographical flexibility, the more flexible the organisation is deemed to be.

Complexity may however, act as a constraint to the range of options resulting from geographical flexibility. The management of a multinational firm operating in a large number of countries with different lines of business may not be able to utilise its geographical flexibility fully as a result of the extent of information required and the complexity of decision making resulting from the large number of strategic options that are available.

6.5.2.6 Human, cultural and organisational flexibility

The last category is probably the most important and pervasive source of flexibility in the organisation. According to Ansari *et al.* (1997) three of the most important aspects of a good information system are the cultural, behavioural and technical attributes. The technical attribute is addressed in informational flexibility, while the behavioural and cultural attributes are addressed in this category, which may be divided into four subcategories:

- Managerial capabilities;
- Employee capabilities;
- Corporate culture; and
- Organisational structure.

These attributes have been grouped together as they are the most difficult to observe and measure from an accounting perspective. As the main purpose of this classification framework is to provide a basis for the development of information on flexibility, these categories have been combined. Here a qualitative approach is needed for the measurement of required, actual and potential levels of flexibility, as well as the speed, direction, acceleration and trends in flexibility. It is a paradoxical fact that the information which is often the most important is also the most difficult to measure. As a result, this type of soft information is usually ignored and excluded from the traditional accounting information system. Flexibility may therefore contribute towards the development and extension of the traditional accounting model.

The capabilities of management form the main building block in creating a flexible organisation. According to Volberda (1998), the speed of change in today's turbulent environment weakens the sustainability of specialised routines, and increases the importance of flexible, dynamic capabilities. Specialised routines such as regulations, plans, budgets and forecasts are appropriate in stable, fairly predictable conditions, while more dynamic capabilities are called for in volatile conditions. Specialised routines are based on management's ability to replicate tasks performed in the past while flexible capabilities require that management be equipped with a knowledge

base which enables them to solve complex non-routine problems. Some of the qualities of each of the two capabilities of management are illustrated in figure 6.13.

Figure 6.13 Managerial requirements of dynamic capabilities

Specialised routines	Dynamic capabilities
<ul style="list-style-type: none"> • Static control • Limited expertise • Low absorptive capacity for change • Fixed managerial mind sets and no experimentation • Lower level learning 	<ul style="list-style-type: none"> • Dynamic control • Broad and deep knowledge base • High absorptive capacity for recognising change • Broad managerial mind sets and much experimentation • Higher level learning

Source: Volberda, H. W. (1998) *Building the flexible firm: how to remain competitive*, New York: Oxford University Press, p.109.

Management, through their capabilities, drives the creation of flexibility by introducing a climate, which fosters flexibility in the organisation. Such a climate requires the development of flexible employees and a supportive corporate culture together with an organic organisational structure, which is conducive to flexibility.

The capabilities of the employees to deal with change in the organisation are a primary and important source of flexibility. An organisation is as flexible as its people. The creation of human flexibility within an organisation requires a wide range of approaches, from fostering an environment conducive to creativity, innovation and learning, to changing mind sets and thinking patterns and increasing human responsiveness to change. Johnson (1992) suggests that flexibility is created by empowering the work force, by giving people ownership of the processes in which they work and by stimulating learning and innovation. He maintains that the essence of organisational learning is the discovery of new and innovative ways to remove constraints that stand in the way of the flexible fulfilment of customer needs. Stacey (1992a) stresses that people need to change their mind sets to become more flexible. He says that we are trying to explain the messy opportunistic global competition game by using mental models which are all about order, stability, cohesion, consistency and equilibrium. People are not paying enough attention to the irregular, disorderly and changing nature of the game. People tend to react this way because it is easier and offers more security than searching in the dark for

explanations which are based on disorder, irregularity, unpredictability and change (Stacey, 1992a). In developing flexible people, it is necessary to address their defensive routines (Argyris, 1985). The defensive routines applicable to change and uncertainty will probably manifest themselves against flexible capabilities as well.

Peters (1991, p.341) gives ten prescriptions to improving flexibility in people:

- Involve everyone in everything;
- Use self-managing teams;
- Listen to people and recognise achievements;
- Spend time on recruiting;
- Train and retrain;
- Provide incentive pay which is based on appropriate indicators; and
- Provide employment security by retraining and redeployment rather than retrenchment.

Flexibility should become part of corporate culture. Bate (1984) defines corporate culture as the set of beliefs and assumptions held relatively commonly throughout the organisation and which are taken for granted by its members. The more innovative the culture of the organisation is and the more willing it is to recognise and adopt change, the greater the possibilities for strategic flexibility in the organisation will be (Volberda, 1998; Johnson, 1987).

Corporate culture preserves the corporate identity. If a too flexible corporate culture is created, it may endanger the identity of the organisation. However, according to Peters and Waterman (1982) this is not really a problem, as there are two levels of culture: A flexible organisation usually has a core set of beliefs of a relatively high order and a heterogeneous set of belief at lower levels. Not all levels of corporate culture are flexible to the same extent. Instead, a constructive tension should exist between what should be flexible and can be changed, and what should be preserved.

The extent of volatility in the environment, together with management's response, which could be either reactive or proactive, will influence the corporate culture. If the

change is incremental, returning and readaptation is required and the impact on especially higher order corporate culture will be limited. However, if change is discontinuous and reorientation or recreation is required, the impact on corporate culture may be profound (Nadler & Tushman, 1995). In such volatile times even the generally stable higher order culture may require radical change for the organisation to survive and in the process the organisation may experience an identity crisis.

As already mentioned, people with inflexible attitudes and mind sets inhibit the flexibility of an organisation. Organisational structure is often used as the vehicle to maintain the *status quo* while rules, lines of authority, policies and plans are used to entrench it. Pasmore (1994) contends that we need to learn not only to *think* more flexibly, we need to learn to *organise* in order to achieve it. An environment must thus be created which provides incentives to being flexible and thinking flexibly.

Organisational flexibility is created by selecting structures that facilitate and encourage flexibility. A hierarchical structure destroys organisational flexibility whereas a fractal, organic, dynamic or virtual structure develops it (Pasmore, 1994; Peters, 1991; Miles & Snow, 1986; Davidow & Malone, 1992). Parthasarthy and Sethi (1993) note that flexibility requires organisational arrangements to be functionally integrative, to ensure the structure is not static but constantly evolves in response to changes in its environment. The following are characteristics of such a structural design:

- It will tend to be non-hierarchical;
- The design should maximise freedom of movement;
- It should result in knowledge being widely shared and easily accessible;
- It should involve people with knowledge in goal setting and integration activities; and
- The structure must be designed to encourage, support and reward learning (Pasmore, 1994, p.166).

In attaining organisational flexibility the structure of the organisation will typically change from a highly structured and rigid inwardly focusing form to an evolving, flat

structured outward focusing form. In the design of organisational structures, flexibility will become the operative word. The organisation should have the quality of a Calder mobile, shifting with the slightest breeze (Toffler in Pasmore, 1994).

Despite the fact that flexible management and employees form the basis for a flexible organisation, flexibility is a construct to which accountants – as employees or part of a management team – usually have not been exposed. Consequently, it is not surprising that they are not necessarily equipped to identify, measure and communicate information on flexibility.

6.6 Developing a flexible organisation

The re-engineering of an organisation is often aimed at increasing its flexibility. The literature on Management Theory indicates that flexibility is an important construct for an organisation operating in a volatile environment. Although many authors refer to the usefulness of the construct and study specific aspects of it, few have attempted to draft guidelines or procedures for management in designing a flexible organisation. A number of researchers have attempted to develop frameworks for certain types of flexibility, such as manufacturing flexibility (Gerwin, 1993), financial flexibility (Donaldson, 1971), geographical flexibility (Muralidhar, 1992) and marketing flexibility (Harrigan, 1985). However, the two most comprehensive frameworks for creating flexible organisations are those proposed by Volberda (1998) and Pasmore (1994).

Volberda (1998) based his strategic and integrated approach on new developments in strategy and organisation theory, interviews with practitioners, case studies in large corporations and empirical evidence and ongoing flexibility projects in a number of large Dutch companies. The Volberda framework consists of five elements, as shown in figure 6.5.

The first requirement in designing a flexible firm is management capabilities. Management should develop a portfolio of dynamic capabilities or a flexibility mix for

control of the organisation. This means that management should develop flexible manufacturing, JIT, purchasing, multisourcing, quick-response or product development capabilities (p.103). In terms of this perspective of dynamic management control, competitive change becomes a vehicle for creating order instead of destroying order (p.97). The portfolio of management capabilities should be available in sufficient variety (both as far as quality and quantity are concerned) and should be capable of being implemented with the necessary speed. Volberda (1998, p.117) suggests that management capabilities could result in the creation of four types of flexibility, as illustrated in figure 6.14.

Figure 6.14 : Types of flexibility

Variety	High	Structural	Strategic
	Low	Steady-state	Operational
		Low	High
		Speed	

Source: Volberda, H. W. (1998) *Building the flexible firm: how to remain competitive*, New York: Oxford University Press, p.117.

In the case of steady-state flexibility, static procedures are used to optimise company performance. This type of flexibility is suitable in times of minor change when the speed of response is not a high priority. Operational flexibility consists of routine capabilities, which relates to the volume and mix permutations of operational activities. It provides rapid response to familiar change. Structural flexibility consists of capabilities for inducing evolutionary change in the organisational structure to suit changing conditions. In times of revolutionary change, management will need to implement structural changes to facilitate renewal. Strategic flexibility consists of capabilities related to the goals of the organisation and is the most radical type. It needs to be used when the organisation faces unfamiliar changes that have far-reaching consequences and requires a rapid response.

The organisational design determines the enterprise's responsiveness and controllability. Increases in the controllability of the firm might involve changes in technology, CAD, CAM or FMS structure, culture, empowerment and corporate identity programmes (p.103). The organisation should be designed to promote flexibility and support management capabilities in creating and sustaining it. Flexible organisational design may be the result of:

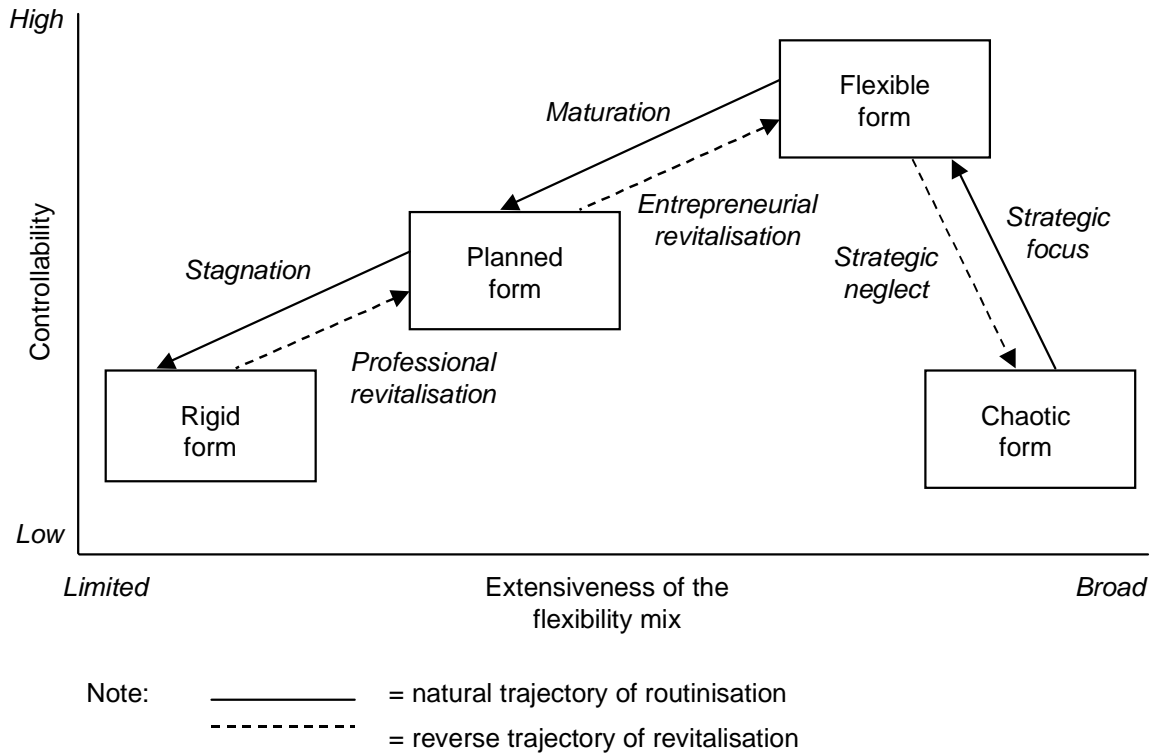
- technology used in operations and information systems;
- changes in the structure of the organisation from a mechanistic to an organic form; and
- corporate culture which serves to support management's capabilities to create flexibility (Volberda, 1998, p.102).

The third element refers to the impact that competitors will have on the flexibility and, therefore, the combinations of management capabilities and organisational design that are required. In other words, the level and nature of competitive forces determine the combinations of flexibility types. In more stable conditions with lower levels of competition, operational flexibility with a structured organisational design may suffice. In dynamic and competitive environments, strategic flexibility and an organic organisational structure will be more appropriate. The fourth element arises from the combination of managerial and organisation design tasks given various levels of competition. This involves the kind of matching process typically called for in the resolution of paradox (p.185). The paradox of flexibility is manifest as a tension between change which is provided by dynamic management capabilities, and preservation and control which is provided by the organisational design task. Once competition has reached a certain level it gives rise to a constructive tension between developing capabilities and preserving organisational conditions. This is also known as metaflexibility.

The fifth element arises as companies operate under different levels of competition and management uses constructive tension to combine the elements in different ways. This results in alternative flexible organisational forms. These forms reflect

management's method in coping with the paradox of flexibility. The combinations are illustrated in figure 6.15.

Figure 6.15 : A typology of alternative flexible forms for coping with hypercompetition



Source: Volberda, H. W. (1998) *Building the flexible firm: how to remain competitive*, New York: Oxford University Press, pp.212, 217 & 219.

In figure 6.15 the flexibility mix refers to management capabilities while controllability refers to organisational conditions. The implication is that different organisations are exposed to different levels of competition and as a result each adopts appropriate organisational forms e.g. rigid, planned, flexible or chaotic. Each type represents a particular way of addressing the flexibility paradox of change versus preservation (Volberda, 1998, p.211). The rigid form is found in a typical bureaucratic organisation with low flexibility, prescribed procedures, a mechanistic structure and conservative culture. It is suited to stable periods and low levels of competition. The planned form has limited options and management capability and a specified fixed routine, but the organisational structure and culture are more flexible. As a result the organisation is more responsive to change than the rigid form. This form is suitable for controlling the organisation in the absence of unexpected change. The flexible form has a high

flexibility mix (management capabilities) supported by structural flexibility (organisational design). Management uses dynamic capabilities to deal with unexpected change and the organic structure makes the organisation highly responsive. This form is suitable in unstable times, with of high levels of competition and unexpected changes. It allows management to maintain control over the environment while preserving the organisational identity through a constructive tension or balance between change and preservation, called the paradox of flexibility. Finally, the chaotic form has either an extensive flexibility mix or strategic flexibility, but it lacks structural flexibility or flexible organisational conditions and, as a result is uncontrollable. These organisations cannot implement change as it has no distinct technology, stable administrative structure, or basic values stemming from their organisational culture. Chaotic forms do not allow their management to gain control over the environment.

The trajectories between the forms indicate the routes available to organisations to revitalise themselves in response to escalations in competition and increases in instability. The Volberda framework is very comprehensive and provides guidance to management in designing a flexible organisation by making use of management capabilities and organisational conditions.

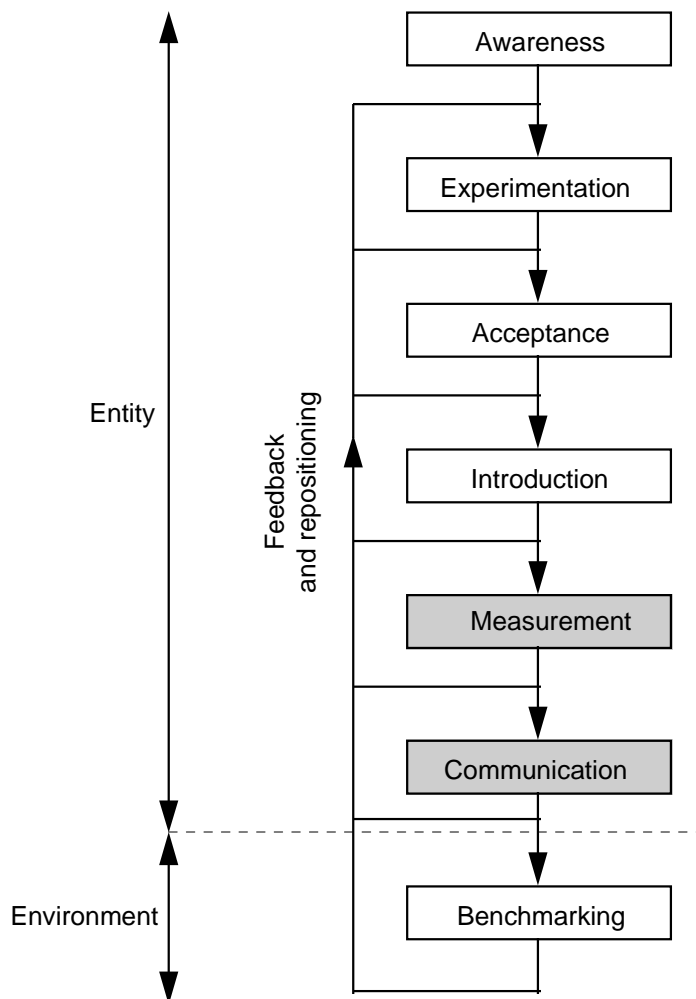
In designing a flexible organisation Pasmore (1994) concentrates on those factors in organisations which are amenable to flexibility. He notes that a prerequisite for the creation of a flexible organisation is that the entire system and each of its many components be changed. The *first* and foremost factor is to create flexible people who are willing to take responsibility for change. People become more flexible and willing to participate in their business when technical and social skills are well developed. The *second* factor entails the development of flexible technology, which will enable the organisation to respond to change. However, technical flexibility is not dependent solely on technology; technical flexibility is often lacking because people ignore the need for it or simply fail to incorporate flexibility into the system (p.77). The *third* factor is to create work flexibility by means of teams and by using collaboration. This factor addresses the organisational design and work allocation in the corporation, and entails flexible job descriptions and crossfunctional involvement via teams. The *fourth* factor refers to the creation of flexibility in thinking so as to

enhance innovation, experimentation and research and development. Flexible thinking is supported by aspects such as the sharing of knowledge, freedom of movement, involvement of people in goalsetting and an organisational structure which encourages, supports and rewards learning. The *fifth* factor entails flexible managers and flexible management, which require changes to the leadership and decision-making process of the organisation. The situation in the environment should dictate who is best qualified to make decisions and lead. The *sixth* and last factor addresses the need for a flexible organisational structure, known as a fractal organisation design. The purpose of the fractal structural design is to create a structure, which can constantly adapt to the environment. This structure allows for maximum flexibility in what people do and learn, within the minimum framework of commonality that is needed to guide their actions towards common goals (p.232). The Pasmore framework focuses on the areas where flexibility should be created in the organisation but does not provide a comprehensive and integrated framework for balancing the flexibility in the different functions. This is a necessary condition for designing a flexible organisation.

These two frameworks on flexibility view the process from a managerial perspective and do not emphasise the importance of measuring the required, actual and potential levels and types of flexibility in an organisation.

A broader view of the development of flexibility from an accounting perspective, which also highlights the measurement and communication of flexibility, is illustrated in figure 6.16.

Figure 6.16 : The implementation process



Source: Own observation.

The first step towards the implementation and use of flexibility is to create an *awareness* of the construct and its role in the long-term wealth creation and well-being of an enterprise. This awareness should be created both within and outside the enterprise.

Once an awareness of the role and use of flexibility has been created, management may *experiment* with the effect the different categories and levels of flexibility have on their enterprise. They should also study the levels of flexibility attained by competitors and the competitiveness of markets. Experimentation may result in the identification of certain types, combinations and levels of flexibility through which the enterprise may gain a competitive advantage.

Once the experimentation phase is complete, it is necessary to gain *acceptance* for the introduction of flexibility. Aspects such as corporate culture, responsiveness to change, defensive routines, the political bases in the organisation and training programmes should be considered. It is important to stress that some flexibility already exist in most organisations but that it may not have been described or labelled as such. Its existence may thus not be visible at the outset of the process. The *introduction* of a more formal structure for flexibility will lead to the identification of existing flexibility levels as well as those areas where flexibility should be created. During the introduction phase the Volberda and Pasmore frameworks may be used as a departure point.

Once certain goals for flexibility have been identified by management, it will be necessary to *measure* the levels of actual, potential and required flexibility by introducing appropriate measures and indicators. The indicators can be used to quantify the aims of the enterprise as well as measure progress towards achievement.

These indicators should be *communicated* to users inside the enterprise to enable them to assess their performance and also to stakeholders outside the enterprise, allowing them to compare the actual results against the predetermined indicators over time. It is envisaged that once the use of flexibility indicators become prevalent among enterprises, and are *accepted* by stakeholders, certain indicators may become standard practice which will improve the comparability of information on flexibility among enterprises. This may ultimately result in the development of *benchmark* industry indicators.

Throughout the implementation process constant *feedback* and repositioning of the organisation is required. For example, once the management has experimented with certain categories of flexibility and is introduced it into the enterprise, further refinement may be necessary through feedback to the experimentation phase.

The measurement and communication of information flexibility via the accounting information system is addressed in the next chapter.

6.7 The impact of flexibility on Accounting

The importance of becoming flexible in order to survive in a volatile and changing environment is well recognised in the literature on Management Theory. The full impact of flexibility has however not yet been recognised in Accounting. In Financial Accounting the exposure to flexibility has been limited largely to the attempts of the FASB and the AICPA to increase the reported information on financial flexibility (only one category of flexibility) in the financial statements. In Managerial Accounting prominent authors such as Johnson (1992) and Allen (1994) have recognised that flexibility forms an important element in the decision-making process of management. However, on the whole the focus has been on production flexibility. Other authors in Management Accounting have concentrated on the inadequacies of existing models and techniques, such as capital budgeting and valuation, because they failed to recognise the impact of different types and levels of flexibility (Hayes & Abernethy, 1980; Hayes & Garvin, 1982; Trigeorgis & Mason, 1987). Even in Strategic Management Accounting, which provides a vehicle for recognising the full impact of flexibility on all decision levels, the different categories of flexibility have not been given attention. Kogut (1983) notes that in strategic management literature attention is focused on encouraging managers of multinational enterprises to implement strategies that highlight operational flexibility.

One of the reasons for the lack of recognition of the importance of flexibility in Accounting is that the discipline is not geared to deal with a construct of this nature. Flexibility requires a future based, outward looking and often qualitative orientation, but the traditional accounting model was developed to deal with the past, to look inward to operative and administrative issues in the firm, with a quantitative orientation. Consequently it is suited for dealing with an unpredictable future which requires scanning of the environment, monitoring of competitors, the ability to deal with change and the development of information which supports strategic decision making.

Heath (1980, p.55) made the following comment on the inflexibility of accountants and the accounting system:

“Accounting practices that have developed under conditions existing at one point in time may become so embedded in our thought processes that they will come to be regarded as natural or inevitable. As a result these practices may not be re-examined and re-evaluated in the light of the changed circumstances and conditions.”

Just as an investment decision is incomplete without taking flexibility into consideration, so the decision making of shareholders or other stakeholders of an organisation are incomplete without considering all levels of flexibility. If Accounting continues to ignore the central role of flexibility in surviving in volatile and changing times, it may progressively lose its relevance and utility. The next chapter considers the impact of flexibility on Accounting, the different attempts by standard setters to introduce more information on flexibility and the type of information that should be communicated in more depth.

6.8 Summary

The construct of flexibility has been observed in the enterprise (Donaldson, 1971) and the benefits to enterprises of being flexible has been described in the literature (Pasmore, 1994; Peters, 1991; Boynton & Victor, 1991; Johnson, 1992, Gerwin, 1993; Volberda, 1998). However, there is a lack of theoretical frameworks to guide management in developing flexible organisations. There is also limited guidance in the literature on measuring and communicating information on flexibility to a variety of stakeholders.

The development of the construct of flexibility along more formal lines allows management and employees to explore the possibility of adding long-term value to an enterprise by creating and sustaining certain levels and types of flexibility in response to different changes in the environment. Flexibility is, however, not a static condition, but rather a dynamic process (Volberda, 1998). This implies that creating and sustaining a flexible organisation is a continuous process, too.

In this chapter the influence of flexibility on the organisation was considered. The term was first defined to demarcate the field of study. The multidimensional aspects

of the construct was highlighted in a discussion on the relationships between flexibility and aspects such as change, management responsibility and choice, survival, innovation, organisational structure, and so forth. A classification framework consisting of six categories and four aspects based largely on a functional approach was then proposed. The framework can be used as a basis to study the multidimensional and complex construct in organisations, as well as for the development of information on flexibility and flexibility indicators. The scope of each of the identified categories of flexibility in the organisation was described next. Procedures for designing a flexible organisation and implementing flexibility in organisations were addressed and finally the impact of flexibility on Accounting was briefly considered. This aspect is addressed in more detail in the next chapter.

Chapter 7 Accounting information on flexibility

“Judgements about flexibility options tend to be subjective and informal. Flexibility levels are rarely monitored or even measured.”
(Aaker & Mascarenhas, 1984)

7.1 Introduction

The need for organisations to be flexible in order to survive times of discontinuous change is well recorded in the literature. Kanter (1982, p.39) stresses that the organisations that are turning out to be successful now will above all be *flexible*. They will also demonstrate the ability to bring particular resources together quickly, and have the necessary capacity to deal with them. Flexibility is central to the success of an organisation in uncertain times. Information on flexibility is therefore be useful and necessary in the decision-making process of stakeholders.

The accounting model was developed during fairly stable times, and mainly for trading concerns. Since then accounting information has concentrated on a relatively small area of measurement – the financial measurement of transactions and events. If the field of Accounting is extended to include non-financial and more qualitative and forward looking information, it will develop the potential to provide information on flexibility, too. Such a system will

- support and sustain flexibility in the organisation;
- provide information on the impact of strategic, operational and administrative decisions on flexibility;
- measure and monitor flexibility levels and mixes on a continuous basis;
- provide guidance to management on changes required to flexibility levels and mixes in the light of uncertain future threats and opportunities; and finally
- provide discriminatory information which will enable stakeholders to distinguish flexible from less flexible organisations.

In its conceptual framework on reporting SAICA (1990) recognises the usefulness of information on the ability of an organisation to adapt to its environment. In paragraph 16 it is stated that the financial position of an enterprise is affected by the economic resources under its control, by its financial structure, by its liquidity and solvency and *by its ability to adapt to changes in the environment in which it operates*. Unfortunately this aspect of flexibility is ignored in the subsequent discussion in the framework and no guidance is provided to preparers and users of financial statements. Indeed, ten years earlier The Corporate Report (ICAEW, 1975, p.77) already recommended that financial reports should help users to assess economic stability and the vulnerability of the reporting entity to changes in the environment. The Stamp Report (CICA, 1980), too recognised information which allows them to assess the adaptability of the enterprise as a category of their needs. Despite this lapse of time limited work has been done on valuing flexibility and developing flexibility indicators in Accounting. Gerwin (1993, p.400) provides the following reasons for the lack of operationalisation of this construct:

- Little agreement exists as to the domain of flexibility;
- The multidimensionality of the construct compounds the effort that must go into creating scales of flexibility, testing them and collecting data;
- The construct can be studied at different levels and while measures developed at one level may apply to other levels, the collected data will not;
- Operationalisations which span industries are more useful for research than those limited to a single industry, but are more difficult to create; and
- Communication is lacking between those doing formal work with implications for measurement and those constructing scales for use in practice.

To this list other reasons for this lack of measurement may be added: Accountants are not always aware of the importance of such a construct to businesses. The accounting system has not been developed to deal with such an elusive, multidimensional construct. Accountants in general have not been trained to deal with volatility, change and flexibility, and often find it more difficult than people from other disciplines to come to terms with change (Allen, 1994). New developments in Accounting are constrained by legislation and GAAP.

It is therefore not surprising that the accounting system has to date largely failed to recognise, incorporate and measure the flexibility of organisations. Donaldson (1971, p.263) suggested that a major practical problem concerns bridging the gap between established accounting information systems geared to measuring financial values according to accepted accounting conventions and the development of flexibility measures that in effect require a new accounting system. Nonetheless, the accounting information system provides the most cost effective means of communicating information on flexibility for two reasons:

- It already has the necessary infrastructure to collect, process and disseminate information on the extended enterprise; and
- Accountants are trained to identify, measure and report on business information.

It is unlikely that the accounting system can remain unchanged by the inclusion of information on multidimensional constructs such as flexibility. There are three alternatives for the incorporation of information on flexibility in the accounting information system:

- Use of a parallel information system to record and process information on flexibility and similar qualitative constructs;
- Expansion of the existing system to accommodate both financial and non-financial information and quantitative and qualitative information; or
- Alteration of change the accounting system as a whole so that it can become better aligned to the demands for information from its clients.

A limited amount of work has been done on flexibility in Management Accounting, in the areas of discounted cash flows and net present values, the synthesis of flexibility and options theory and through the development of non-financial measures in especially manufacturing flexibility. In Financial Accounting past attempts of standard setters to require the disclosure of information on financial flexibility (only one of the categories of flexibility) have repeatedly met with vehement resistance from especially preparers of financial statements. The disclosure of information on

financial flexibility in the financial statements has been criticised as “being less than practical” and “requiring limitless disclosure that is based on speculation on the ability of a company to respond to hypothetical future events” (see Ameen in Mello, 1994, p.12). The current position is that the importance of flexibility in an organisation is recognised in Management Theory and Organisational Theory, but accounting researchers have not resolved how this important construct should be incorporated into the accounting information system of enterprises.

In this chapter the operationalisation of the construct of flexibility is considered. Attention is given to the information on flexibility that may be provided in internal and in financial and corporate reports. Suggestions are made on how this information should be measured and communicated are put forth. The categories of flexibility developed in chapter 6 are used as a basis for the measurement and communication of information on flexibility. In each of the categories, consideration is given to the scope of the category, the usefulness of such information and research developments in that area of flexibility. Each category also contains examples of flexibility measures. Suggestions are made as to which type of information and by what means the information should be communicated to users. These measurement and communication aspects form part of the implementation process highlighted in chapter 6 (figure 6.16). Lastly, the benchmarking aspect is considered briefly. In the next chapter the extent to which the construct of flexibility will assist Accounting in addressing its challenges, as developed in chapter 5, will be discussed.

7.2 Measurement and communication

Accounting is a measurement as well as a communication discipline (Belkaoui, 1992, p.25). Once transactions, events or activities have been selected by the accountant, they are measured by attaching numerals to their attributes. These measurements of elements are suitable for aggregation or for disaggregation as they are stated in financial terms (Hendriksen & Van Breda, 1992). In Accounting, measurement usually results in monetary values being allocated to objects and activities. If the object or activity cannot be measured in monetary terms, it is relegated to the notes

of financial statements and is classified as non-financial information. Non-financial information consists of quantitative information such as items measured in weight, mass and number of units or hours and qualitative information such as descriptions, opinions or discussions of certain attributes.

The FASB (1984) defines measurement in Accounting as the ability to measure relevant attributes with sufficient reliability. In other words, uncertainty as well as objectivity and verifiability act as constraints to the process. Too much uncertainty in the measurement of attributes of an object, such as an asset, results in information with a low reliability and it is accordingly not recognised in the financial statements. Similarly measurements that cannot be made objectively and that cannot be verified independently are not included in the financial statements.

Every measurement is based on a scale, whether it is a nominal, ordinal, interval or ratio (Belkaoui, 1992, p.28). In a nominal scale numbers are used as labels, such as the numbering of the ledger accounts in the accounting general ledger. An ordinal scale is used for ranking objects in respect of particular attributes, for example, one company is more flexible than another. A weakness of the ordinal scale is that differences or intervals between numbers are not necessarily equal and that the numbers do not signify how much of an attribute the object possesses (Kam, 1990, p.499). In an interval scale equal values are attached to the intervals between assigned numbers. The interval scale is used in certain aspects of cost accounting (AICPA, 1970, parr. 208-209). The ratio scale assists in the determination of the equality of ratios and has a unique original point at which the distance to at least one object is known. The ratio scale is the most often used in Accounting and usually conveys the most information. In developing a scale to measure flexibility in organisations the simpler approach would be to develop an ordinal scale, indicating which of a number of firms is the most flexible. A ratio scale would be more complex to develop, but could provide information on the extent and nature of flexibility in organisations.

When flexibility is measured in Accounting by assigning a number to an object, this number should be seen in relation to the numbers assigned to other objects. Ijiri (1967) noted that should a number be assigned to an object, it is meaningless unless

it is compared to numbers assigned to other objects and unless the relationship of these objects can be properly inferred. Accounting as a discipline of measurement in fact identifies and studies the relationships between informational elements in businesses. Similarly, information on flexibility would result in the identification of relationships. This means that a flexibility scale would serve to identify the relationship between selected numbers on the scale, and to discriminate between flexible and inflexible concerns.

In Accounting a number of measurement methods can be used to attach monetary amounts to objects and activities. The method selected should ideally be determined by the objectives of the measurement and the needs of users. For example, an object such as an asset has several attributes and the measurement and publication of some attributes using a particular measurement method may be relevant to one class of stakeholder but not necessarily to another. There are five generally accepted measurement methods:

- *Historical cost:* In this method the aggregate amount paid by the enterprise to acquire control over the use of an asset is used.
- *Current replacement cost:* Here the current sacrifice that would be incurred in the replacement of the asset is the basis for measurement (Baillie, 1985).
- *Current market value:* Current market value refers to the cash that would be paid if the same or an equivalent asset were acquired now.
- *Net realisable value:* In this method the cash that could be received by selling the asset in an orderly disposal after selling expenses is the basis for measurement.
- *Present value of future cash flows:* The present value of discounted net future cash flows that an item is expected to generate in the normal course of business.

The use of these measurement methods is a contentious issue in Accounting that is far from resolved. The conceptual frameworks of the FASB, the IASC and SAICA do not prescribe a measurement model, but merely list and describe the alternatives models. The most widely used model remains the historical cost model, and the

hybrid historical cost model, which incorporates the revaluation of assets. There is however a discernible movement towards the use of current market values to measure instruments such as derivatives and investments. This debate on measurement bases complicates the development of flexibility measures. If a monetary value is attached to a certain type of flexibility, which measurement model is the most appropriate? Not only is there little consensus on an appropriate measurement basis, but the majority of models are based on arm's length transactions (for example the buying, selling or replacing of assets) which may not apply to an intangible, non-separable, internally generated and pervasive construct such as flexibility.

The main benefit of financial information in Accounting is that it allows stakeholders to aggregate, disaggregate, interpret and compare information. Interpretations take place by relating the performance of the firm to a benchmark, be it the previous year's results, competitors' performance or industry indicators. These interpretations result in recognition of trends, acceleration, change, direction, speed, interactions relationships and patterns which, although often based on historical information, have feedback and some degree of predictive value to users.

The construct of flexibility should be measured and monitored. Its measurement will enable stakeholders to assess the organisation's vulnerability to environmental volatility. Donaldson (1971, p.278) contends that the measurement of flexibility is an attempt to measure, as well as possible, the economic muscle of the business either for seizing opportunity or for coping with adversity. Gerwin (1993) suggests that researchers need flexibility measures to test theories and managers need them to reach decisions, on for example investments or to determine performance levels. He submits the operationalisation (or measurement) of flexibility is the *single most important research priority* in this field of study. Once the construct has been measured it should be monitored by management to ensure that flexibility is maintained.

When measuring flexibility or developing a scale of flexibility, there are two distinct aspects to consider. The *first* aspect is the valuation of flexibility itself. Placing a value on flexibility is often somewhat of a paradox. To illustrate, flexibility is an

attribute which management can cultivate in organisations so that they can respond to uncertainty. The further one looks into the future, the greater the uncertainty and the more unstable and unpredictable the environment becomes. The value of flexibility arises from this uncertainty. However, uncertainty does, however, not lend itself to neat quantification or description, required of a variable in valuation models. The more one attempts to quantify uncertainty, the more it loses some of its attributes. A similar logic applies to flexibility. This means that when one attempts to value flexibility, it loses some of its attributes.

The opposite view is that if flexibility is not measured, it cannot become and remain visible and cannot be monitored by management. Peters (1991) comments that what gets measured get done. Placing a value on flexibility will often require the use of surrogate variables, in other words variables, which the management and accountant identify as being indicators of the different levels and types of flexibility in the firm. Flexibility indicators do not have to determine the value of a concept which is so difficult to measure precisely, but should instead serve to identify broad trends (Gerwin, 1993). So, for example, one of the most common surrogate measures in practice consists of counting the number of options available to management at a given point in time.

Several researchers use options theory to attach a value to flexibility (Triantis & Hodder, 1990; McDonald & Siegel, 1985; Trigeorgis, 1993; Muralidhar, 1992). They argue that the value of flexibility arises from the ability of management to defer decisions, expand or shut down operations, and so forth. (see figure 6.4). A limitation of the options theory approach is that flexibility is deemed to arise only from the number of strategic options available to management. Other aspects of flexibility such as the ability to innovate, create, recognise opportunity, anticipate threats or influence the environment, are not included. Kumar (1987) suggests entropy as a basis for measuring flexibility, in that the freedom of choice of management in using options should be considered. Entropy has intuitive appeal as it mirrors the randomness or uncertainty in the system (Gerwin, 1993).

Another valuation alternative is to use economic value as a basis. The present value of future cash flows including the flexibility of the company could be compared to the

present value of future cash flows excluding flexibility, with the difference between the two providing an indication of the value of flexibility at a point in time. This alternative has serious limitations, as forecasting future cash flows both inclusive and exclusive of flexibility may be difficult and unreliable. A variation on this approach may be to incorporate flexibility into the cost of capital instead of the future cash flows. The determination of the amount by which the cost of capital should be adjusted to incorporate flexibility remains a problem however. Furthermore, in very volatile times the value of flexibility as determined by means of this approach may even be negative. In such periods flexibility provides the means of survival to the organisation, even at the cost of profitability and cash flows over the shorter term. If the entity is listed, another alternative may be to consider market capitalisation as a means of valuation. The listed share price and the number of issued shares provide the market capitalisation from which net assets valued at market value is deducted to provide goodwill. The value of flexibility in the organisation then forms part of the goodwill.

A more qualitative approach to valuing flexibility is suggested by other researchers. Gerwin and Tarondeau (1989) use a five-point scale from “flexibility has decreased a lot” to “it has increased a lot” to assess management’s perceptions on flexibility. Volberda (1998, p.236) proposes a scale from 0% to 100% to measure the flexible capabilities of management. The use of such opinion polls and perceptions are, however, subject to biases, which are certain to distort responses. Another approach to valuing flexibility may be to select appropriate attributes of flexibility and to use statistical models such as multicriteria decision making to establish a value (Bogetoft & Pruzan, 1991).

The limitations in valuing the construct flexibility is that valuation models tend to place a value on the construct at a particular point in time, while the creation or where applicable destruction of flexibility is a continuous process and its value can fluctuate significantly in response to environmental change. Many of the models proposed in the literature are difficult to use or rely on variables, which are difficult to identify. Nonetheless, the valuation of flexibility at a point in time is useful if completed for special purposes such as mergers and take-overs, competitive benchmarking, strategic positioning and share listings.

The *second* aspect to valuing flexibility is to develop flexibility measures and indicators. These may be measured in monetary units, physical units or qualitative means. The indicators can be used to measure the required, actual and potential flexibility in the production, marketing, financial, informational, geographical and human, cultural and organisational categories from a cost, time, quality and range perspective. From the experimentation, development and monitoring process carried out by the management of companies to develop indicators of flexibility, some may emerge as good indicators and measures of flexibility (see figure 6.16). These may then be collected and used to build scales of flexibility. Such scales will allow managers and researchers to compare levels and types of flexibility of organisations to those of their competitors and their industries. In this thesis the evolutionary development of flexibility measures in enterprises, which can be communicated by means of the accounting information system, is developed. Consequently, this chapter concentrates on describing and providing examples to management and accountants of indicators and measures that may be surrogates for measuring flexibility in each of the six categories developed in chapter 6.

Accounting is not only concerned with measurement, but also with the communication of information to users (Belkaoui, 1992; Chambers, 1995). Communication is a broader concept than the mere reporting, distribution or disclosure of information. It is an issue seldom addressed in accounting textbooks – they tend to focus on technical aspects and the content of financial reports rather than on the problems associated with the communication of the information. Gouws (1997, p.75) adapted the ideas of Dance (1970, pp.201-210) from Communication Theory to identify the following 14 components of the accounting communication process:

- Accounting communication entails the verbal interchange of financial messages through symbols.
- Accounting communication is a process by which accountants understand users and in turn endeavour to be understood by them.

- It is dynamic and changes constantly in response to the demands of an ever-changing environment.
- Accounting communication involves interaction between stakeholders.
- Accounting communication grows out of the need to
 - reduce uncertainty;
 - act effectively and economically; and
 - defend or strengthen perceptions or states of affairs.
- It is the process of transmitting data, information, ideas, trust, etc., by means of words, symbols, graphs, etc.
- Accounting communication acquires a sense of participation between the sender and the receiver of the message. Something is transferred from one to the other.
- It is the process by which the particular character of the accountant and the users are linked to each other.
- It is a public rather than a private process. Certain sectors or persons should not be favoured to the detriment of other sectors or persons.
- Accounting communication is the carrier of economical and financial messages, or the channel through which messages flow from the preparer to the user.
- Accounting communication also embodies the discriminatory response of a user to the stimulus contained in messages.
- It consists of a sequence of discriminatory stimuli from the preparer to the user.
- Its main purpose is to affect the behaviour of the user/reader by means of economic and financial messages.
- Accounting communication is the process whereby power is exerted in an uncertain world, which results in movements of wealth.

The communication of information on flexibility by the accountant to users of information encompasses far more than designing indicators on aspects such as flexibility and distributing the information to interested parties. Communication is a process that empowers the receiver of information. The accountant is an active party in the communication process, who contributes to the decoding and interpretation of

information. The type of information that is communicated to the users is determined by and developed around the needs of the users. These needs are constantly changing and evolving. The close relationship between the accountant and users of information required in a communication process is maintained by continuous interaction and feedback. The feedback serves to enhance the quality of the information on a continuous basis, and to align the information to the needs of users.

The communication of accounting information on flexibility seems less of a problem to internal users, such as management and employees. They can demand the information even if the accounting information system is not geared to provide the type they require. However, the cost of the information may as a result, be relatively high. Their access to the accountant allows them to involve him/her in the decoding and interpretation of the information. On the other hand, because external users rely on external sources of information to a greater extent, they tend to base their decision making on a broader base of information.

External users will experience more problems in gathering information that is not explicitly disclosed in financial reports in compliance to legislation and standards. Information on flexibility can however be reported to external users in the financial reports as part of the notes to the financial statements. In support of this approach, the IASC (1995) recognises the notes and other statements and explanatory material as forming an integral part of the financial statements and states that these assist in meeting the objectives of business reporting. In the light of this, Koornhof (1988) suggests that preparers should present the information outside the financial statements in the form of summary tables, which highlight, with comparatives, actual flexibility indicators and targets set by management. The information on flexibility can also be included in segmental and cash flow reporting.

An alternative approach would entail the incorporation of the construct of flexibility into the accounting system and thus into the main financial statements – the balance sheet, income statement, statement of changes in equity and statement of changes in financial position. Such an approach will require extensive change to the existing accounting model as the system is not designed to deal with non-financial

information, change, a future and open system orientation and with multidimensional, pervasive constructs such as flexibility.

If the financial reports are not used as the only means of communicating with these stakeholders, electronic media such as controlled access to the organisation's information data base could be used to communicate this type of information instead. The benefit of technology is that the stakeholders can access up to date information at the level of detail required, and do not have to wait for the release of the financial reports.

The above suggestions only address the reporting and disclosure of flexibility information to users. The communication of information on flexibility requires a higher level of interaction between the accountant and these users than presently exists. The communication task of the accountant should not be limited to decoding, interpretation and feedback but should include the education of these users in the benefits and uses of information on flexibility. The communication process may then be used as the vehicle for providing, decoding and interpreting signals and for educating the users.

In this chapter the broader concept of the communication of information on flexibility is not addressed. This area requires further research, not only in relation to information on flexibility but also in respect to all types of information. As a result, the next section deals with the "reporting" rather than the "communication" of information on flexibility.

7.3 Measuring and reporting information on flexibility

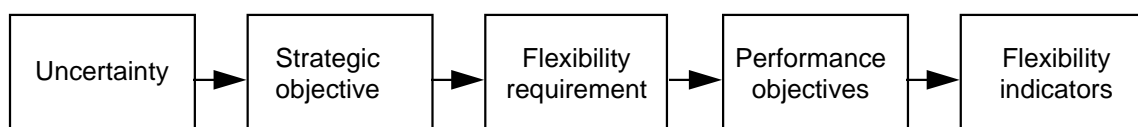
Flexibility arises from a formal decision problem in which the choices from future options are affected by the choices made now (Gerwin, 1993). In other words, the decisions on flexibility made in the present impacts on the options management will have available in the future in response to unforeseeable change. Flexibility is future oriented and the future is unknowable (Stacey, 1992a) and therefore particular problems arise in the measurement and reporting of this type of information.

Because of the nature of the construct, analytical models are proposed which are often difficult to solve unless restrictive assumptions are made (Gerwin, 1993), which in turn result in the exclusion of some of the attributes of flexibility. This supports a prior argument that once flexibility is measured, it loses some of its attributes. With these restrictions in mind the six categories developed for flexibility in the previous chapter (production, marketing, financial, informational, geographical, human, cultural and organisational flexibility) are used as a framework within which information on flexibility can be developed. The use of these categories, essentially a form of reductionism, is warranted as it provides a viable means of exploring the complex aspects of this multidimensional construct in the organisation.

The creation of these categories should however not be used in a manner which fragments the construct. Flexibility is a pervasive quality in enterprises, which is best understood and managed if viewed from a holistic perspective. The procedures for measuring and reporting on flexibility, described later in section 7.4, are designed so that flexibility is initially viewed as a whole, before it is analysed further in terms of the six categories of the framework.

The proposed categories are designed to serve as tools to management and accountants in translating their flexibility requirements into performance objectives and finally into flexibility indicators. Gerwin (1993) suggests that management follows a number of procedures in developing flexibility indicators. They should commence by translating the particular type of uncertainty with which they are dealing into strategic objectives that in turn determine certain flexibility requirements. These flexibility requirements are then translated into performance objectives that can be measured through flexibility indicators. These procedures, with examples applicable to the production category, are illustrated in figure 7.1. Management can adopt similar procedures to develop flexibility indicators in each of the other five categories.

Figure 7.1 : Development of flexibility indicators



Example:

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Market acceptance of kinds of products	Diverse product lines	Mix flexibility	<ul style="list-style-type: none"> • Range of products • Fast setup time • Manufacturing lead time 	<ul style="list-style-type: none"> • Number of products • Number of variations • Setup time in hours • Lead time of products in days
Length of product lifecycles	Product innovation	Changeover flexibility	<ul style="list-style-type: none"> • Lead time in introducing new products • Design of products 	<ul style="list-style-type: none"> • Days from research to manufacturing • Number of design variations • Number of parts used • Number of sub-assemblies • Number of new products introduced

Source: Adapted from Gerwin, D. (1993) Manufacturing flexibility: a strategic perspective, *Management Science*, vol.39, no.4, p.398.

As is clear from the above figure, uncertainty arises as a result of an inability to understand complex relationships so as to predict the future or control the environment. In developing these flexibility indicators, management and accountants can use the classification framework proposed for flexibility in figure 6.7. Each category of flexibility for which indicators are developed has a required level of flexibility. This level is obtained by screening the environment, an actual level of flexibility which is obtained by analysing the conditions and capabilities in the firm and a potential level of flexibility which is not currently being utilised or which may be created almost immediately and at a low cost. The required level of flexibility serves as the benchmark with which the actual and potential flexibility may be compared to identify areas in the firm where flexibility should be created. In each of the six categories the firm gains competitive advantage through flexibility by outperforming competitors on the four strategic aspects of quality, cost, time and range. These strategic aspects are used to determine the type of flexibility indicators that are developed.

From the above description it is apparent that large numbers of flexibility indicators can be developed. Organisations should however limit the number, keep the calculations simple and make the indicators visible to employees (Peters, 1991). This will ensure that the selected indicators will direct and influence decisions and actions in the organisation instead of resulting in information overload, inertia and finally, inflexibility.

The core competencies of organisations developed by Prahalad and Hamel (1990) may provide a feasible basis for selecting the most appropriate indicators for a particular organisation. Core competencies are the collective learning in organisations, coupled with the ability to co-ordinate diverse production skills and integrate multiple streams of technology (p.82). Wheatley (1994, p.93) noted that a business that focuses on its core competencies, identifies itself as a portfolio of skills rather than a portfolio of business units. Such a business can respond quickly to new opportunities because it is not constrained by the rigid boundaries of products and business units. It rather concentrates on the strength arising from human capabilities. The core competencies give organisations a competitive advantage by providing potential access to a variety of markets, by meeting and exceeding perceived customer benefits in end products and by providing a competence, which is difficult for competitors to replicate or imitate. It is important that firms should focus on the areas where they can surprise, outperform and outmanoeuvre competitors rather than merely attempting to replicate that which competitors already perform. Flexibility indicators should therefore be selected to support the organisation's core competencies, as these will be its unique sources of competitive advantage.

The measurement and reporting of flexibility indicators pertaining to each of the six categories of flexibility will now be explained in more depth. The sections consist of a description of the *scope* of the category, together with a number of *examples* to illustrate the role of flexibility and the key *indicators* and *measures* that may be used in each category. A brief overview is provided of the *research* on the measurement and reporting of flexibility in each category.

7.3.1 Production flexibility

Production flexibility refers to the flexibility that an organisation obtains through its selection of and relationships with suppliers, its manufacturing process and total quality management and through its customer relations. Kulatilaka and Marks (1988) note that it is a well-known fact that one of the most significant advantages of flexibility is that it provides the production process with an ability to modify itself in the face of uncertainty. This type of flexibility is achieved by continuously eliminating constraints in production that cause delay, waste, variation, excess, additional work, subquality products and poor customer service. An organisation with high production flexibility typically gains competitive advantage by supplying customised, personalised, innovative, high quality goods and services faster, cheaper and more efficiently to customers than any of its competitors.

Production flexibility consists of three main components, namely input, processing and output as illustrated in figure 6.8. Kulatilaka (1993) presents a simple example of flexibility in the processing section, which arises from the option value of switching between different machines. He uses the model to evaluate the incremental cost savings of a dual fuel boiler over two single fuel boilers and found that the value of flexibility exceeds the incremental investment cost of purchasing a dual fuel boiler. The flexibility thus arises because it gives management the option of switching between different modes of operation. If oil or gas prices change, for example, the flexibility allows it to select the lower cost fuel source while keeping switching costs to a minimum. The value of this type of flexibility increases as fuel prices become unstable.

Some years earlier, Kulatilaka and Marks (1988) described production flexibility as *the ability to change a process from one mode of operation to another*. Manufacturing plants are for example able to choose between purchased electricity, co-generated electricity and natural gas, or between labour intensive and capital intensive technologies. They illustrate production flexibility and its link to strategic choice by means of a wage bargaining example. Wages form part of the input component of production flexibility:

“Consider two scenarios. In scenario 1 there is fixed technology in place that uses one unit of labour. The firm and the labour union

bargain over the pre-wage surplus, R . In scenario 2 the firm has a flexible technology in place with two modes. The first mode is identical to the fixed technology of scenario 1. The second mode uses less labour. Suppose that it is profitable to switch to the second mode if wage is high. That is, the firm now has a threat that says to labour, "if you demand too high wages, we will employ fewer workers". Let us suppose that this flexibility is costless to install and that switching between modes is also costless. Finally, suppose that there is no uncertainty regarding the production process future prices, or bargaining outcome. It is well established that such flexibility confers strategic advantage on the firm resulting in a lower input price."

(Kulatilaka & Marks, 1988, p.575)

It is apparent from the example that production flexibility arises from uncompleted contracts or contingent contracts, which have undetermined variables that may be sources of flexibility. If all aspects of a contract are known and fixed as is the case in a completed contract, no strategic flexibility value is possible. In the above example, once agreement is reached in the wage bargaining as to the value of R and the outcome is favourable to the firm, the strategic option becomes less attractive until the next round of wage bargaining takes place. The strategic value of contingent contracts arises typically because the firm has the option to exercise, renew, defer or abandon it. In terms of options theory, the uncertainty and volatility present in a contingent contract confers strategic value to the organisation. Contingent contracts are examples of potential flexibility, and the value of flexibility of this nature can be measured by means of options theory.

Production flexibility (or sometimes called manufacturing flexibility) is the most comprehensively researched of the six categories. Some research has been done in Management Accounting on the use and disclosure of production flexibility information. Kaplan (1983) suggests that accounting researchers should attempt to develop non-financial measures of manufacturing performance such as productivity, quality, inventory, product leadership, *manufacturing flexibility* and delivery performance. A number of research studies in Management Accounting concentrated on the development of non-financial measures, which can be used to measure production flexibility. A structured approach to developing non-financial indicators, a "balanced scorecard approach", is proposed by Kaplan and Norton (1993). The balanced scorecard approach is a strategic measurement system that supports and motivates breakthrough improvements in identified key areas of the organisation such as product, process, customer and market development. The measurements

are derived from the strategy adopted by the organisation and are focused on the environment of the organisation.

This development of non-financial measures has focused mainly on the informational needs of management, with only limited information being communicated to external users. Kaplan and Norton (1993) contend that the balanced scorecard approach is not suitable for reporting to external users as it focuses on SBUs, which cannot be aggregated into an overall corporate scorecard. They note further that even if the scorecard itself was adjusted to accommodate external reporting, the financial community at present shows little interest in making the change from financial to strategic reporting. Users of financial information have, however, indicated that they require more operating data and performance measures that are used by management to manage the business (AICPA, 1994a, p.28).

A well researched area of flexibility is DCFs. Early critics such as Dean (1951), Hayes and Abernethy (1980) and Hayes and Garvin (1982) recognised that DCF criteria often undervalued investment opportunities. This often leads to myopic decisions, underinvestment and eventual loss of competitive position, because they either ignored or did not properly value important strategic considerations. The development of options theory provided a suitable vehicle for measuring the impact of management flexibility on such investment decisions. Trigeorgis and Mason (1987) view management flexibility as the ability to adapt management's future actions in response to altered future market conditions. This flexibility expands an investment opportunity's value by improving its upside potential, while limiting downside losses relative to management's initial expectations under passive management. The DCF models which incorporated flexibility focused not only on production and marketing flexibility, but also the financial flexibility which stems from financial leverage (Trigeorgis, 1993). It is therefore also relevant to the next two categories of flexibility, namely marketing and financial flexibility.

In another area of research the implications of manufacturing flexibility on the use of efficiency-based performance measurement systems and the use of integrative liaison devices such as teams, task forces and spontaneous contracts were examined. In their study Abernethy and Lillis (1995) indicate that the role of

Accounting or other efficiency-based performance measures decline in those firms with a commitment to manufacturing flexibility. This implies that in firms whose aim is to increase manufacturing flexibility, the role of accounting information is likely to decline especially if it continues to focus on purely prescriptive financial performance measures. This supports the view that the accounting system will have to evolve from a rigid, closed system approach to a flexible open system approach, which lends itself to the measurement and monitoring of qualities such as flexibility.

In their research, Parthasarthy and Sethi (1993) analysed different strategy and structure choices in 87 firms that make use of flexible automation. They found that quality and flexibility strategies complemented the flexible automation strengths, while strategies such as low cost interacted negatively with flexible automation. In their study flexibility was divided into scope flexibility and changeover flexibility. The former involves competing on product variety and volume flexibility and the latter on frequent new product introductions, and on speed in innovation.

A number of flexibility indicators can be developed to measure production flexibility. According to Schonberger (1990) companies such as Motorola and Westinghouse use product lead time as a dominant measure of performance. As was illustrated in figure 7.1, lead time can also be used to measure production flexibility. If manufactured product lead times are shorter than those of competitors, the firm is able to respond more quickly to changes in the markets. Added benefits to a drop in lead times include reductions in use of space, costs and waste. Consider the case where a competitor threatens the current position of an organisation by introducing a superior product to the markets. If the organisation has the correct production flexibility mix, it can respond by introducing a competing product. If production flexibility is achieved through lead times, the time required to benchmark, innovate, design, develop and produce will be shorter than those of competitors and the company can counter the threat by putting an improved product on the market. Where production flexibility is achieved through product design, the existing product could be altered sufficiently to produce a differentiated or customised product or one with alternative uses. Production flexibility from a change of machinery may allow new products to be manufactured on existing production lines, so that no additional capital investment is required. Other strategic alternatives, which may be facilitated

through production flexibility, may entail changing product lines or lowering the costs of the existing products. The greater the range of feasible production flexibility options available to management in response to a threat such as the one described above, the greater the organisation's production flexibility and the probability that a timely, cost effective option which maintains quality requirements can be found to avert the threat.

The accounting information system can support the aim of management to achieve production flexibility. Johnson (1992, p.104) contends that companies require new management information about customer expectations and the flexibility of processes in order to reinforce actions that fulfil the imperatives of global competition, and of being responsive and flexible. Information on production flexibility is useful to management in sustaining and measuring actual and potential levels of production flexibility, considering the impact of their decisions on future levels, and establishing the required levels to deal with unexpected change. Information on production flexibility is thus important to management. In view of the fact that it is used to run the business and position it relative to competitors, it will also be useful, and should be communicated, to external users. Furthermore information on the level of production flexibility of an organisation provides an indication of its probability of surviving in times of dynamic change.

The means of gaining production flexibility will differ from firm to firm. Each firm will select a number of key indicators to measure their progress in critical performance areas with regard to production flexibility. If the aim of a firm is to gain competitive advantage through quality, measures such as defect rates, response time and delivery commitments can be used to evaluate the performance of their products, services and operations against those of competitors predetermined goals and past performance (Eccles, 1991). In the case of a customer-centred firm, performance can be evaluated in terms of data collected directly from customers, such as customer retention rates, market share and perceived value of goods and services (Eccles, 1991). A measure of successful relationship building with customers may be the share of revenue from sales to old customers compared to sales to first-time customers (Johnson, 1992, p.108). If the organisation has material flexibility, indicators such as the number of alternative suppliers and the different types of

materials can be used. To measure modification flexibility, the number of available design changes can serve as an appropriate indicator. For rerouting flexibility, the number could be indicated by alternatives routes through the production line. According to Johnson (1992, p.108) the following ratios promote flexibility:

- *Total time/necessary time*: Actual time spent on a task (including delays) in relation to the ideal time that should be spent on it.
- *Use rate/demand rate*: The relationship between processes and the final demand rate.
- *Number of pieces per workstation*: A comparison of the actual number of work in process items to the required number.

Turney and Anderson (1989) suggest measures that generally lead to continuous improvement in manufacturing performance and which may also be used to measure production flexibility:

- *Output rate*: A measure of total process efficiency;
- *Output per person*: The cost of output achieved per person per day;
- *Output per salary dollar*: The output based on both direct and indirect salaries;
- *Cost of sales ratio*: The cost of sales to gross sales as a measure of productivity relative to the market value of output;
- *Floor space*: A measure of the ability to limit inventory levels and improve production flow; and
- *Cycle time*: The elapsed time from the start of instrument assembly to completion.

Aaker and Mascarenhas (1984) suggest that production flexibility arises from investments in underutilised resources or reduction in the commitments for the specialised use of resources. In the first case production flexibility may be measured by the ratio of excess capacity to total capacity, or by analysing and describing the multipurpose capabilities of equipment. The second type of flexibility may be measured in terms of the number of temporary workers and the suppliers used, the extent of outsourcing, and the number of available distribution channels. Gerwin

(1993) regards the extent of ~~unused floorspace and~~ slack time in the production schedule as indicators of volume flexibility, while the permutations available in production lines and scheduling are regarded as indicators of rerouting flexibility.

As was mentioned previously, the selected measures should be appropriate to the strategies, critical performance areas and core competencies of the firm and may not be comparable to those of other firms. Furthermore the measures often have a non-financial rather than a financial nature. The indicators should therefore be kept simple and be limited to prevent information overload. The indicators selected should support strategies of the firm by focusing on the areas of strengths which may enable it to gain production flexibility by doing something faster, better, with greater variety and more cost efficiently than its competitors.

7.3.2 Marketing flexibility

Marketing flexibility refers to the ability of an organisation to enter and leave markets and to reposition itself within existing and new markets. This flexibility is also created by the ability of an organisation to switch its marketing strategy quickly and effectively between cost leadership, differentiation, focusing or a combination of these. The firm with high marketing flexibility gains competitive advantage through its ability to change, restructure and reposition itself in world markets at a quicker rate and more successfully than its competitors. Marketing flexibility is also created by participating in multiple markets (Aaker & Mascarenhas, 1984) and being able to switch between these markets. As a result, management is able to choose from a number of feasible options, allowing them to change their marketing strategy and position rapidly and efficiently in the face of opportunities to be exploited or threats to be averted.

The competitive advantage derived from marketing flexibility is achieved by knowing your competitors and surprising, outperforming and outmanoeuvring them. CIMA, (1997, p.77) confirms that competitive advantage is relative – it is only possible if you have competitors. The identification and study of competitors and potential competitors are therefore of prime importance for the creation marketing flexibility. Boynton and Victor (1991) note that a firm's competitors are no longer defined solely on a product basis. Competitors are all the companies that have the capacity to re-

configure to produce related products and enter related markets, even if they are not currently doing so. A marketing flexible company will know its own capabilities and its core competencies through which competitive advantage may arise.

Extensive work has been done especially in marketing to identify and assess the position of a firm relative to its market. Porter (1980, pp.47,49) states that competitive strategy involves positioning a business to maximise the value of the capabilities that distinguish it from its competitors. Again, an important aspect of strategy formulation is competitor analysis. Porter distinguishes five components of such analysis:

- Studying the future goals and current performance of competitors;
- Identifying the assumptions and beliefs held by competitors about their relative position in markets;
- Analysing the strengths and weaknesses of the firm's current strategy;
- Analysing the competitors' core competencies;
- Establishing how satisfied competitors are with their current market position and the probability that they will move or change strategy.

This implies that the information system should gather information outside the company about competitors and markets. The organisation and its information system should be open systems that interact proactively and reactively with its environment.

The next level of competitive analysis usually takes place on an industry level. Three key dimensions about industries should be considered here (Porter, 1980, p.189):

- *Industry concentration:* The market may be well concentrated or fragmented. A firm cannot strongly influence the industry outcome in a fragmented industry. A perceptual map of the market positioning is a tool that can be used to identify gaps existing in the market of a typically fragmented industry (CIMA, 1997, p.416). Companies in concentrated markets may not require the same level of marketing flexibility than companies in a fragmented market where there are higher levels of uncertainty and potential volatility.

- *State of industry maturity:* An industry may be emerging, maturing or declining. Marketing strategy and flexibility are affected by the maturity of the industry. An emerging industry is highly volatile as there are no “game rules”. Typically competitors are unpredictable and the industry is attractive to new entrants because of its growth potential. A presence in an emerging market requires more marketing flexibility than a presence in a mature industry.
- *Exposure to international competition:* As a result of the globalisation of markets and the creation of economic blocks, few markets have remained purely local. In analysing markets, both national and international competitors and potential competitors should be taken into consideration. A firm dealing with international competition requires higher levels of marketing flexibility as well as flexibility derived from geographical positioning (category five of the framework of flexibility types).

Competitor, industry and competency analyses *support* marketing flexibility, but do not *create* it. Marketing flexibility is created by the management of the firm and combines an awareness of the benefits of flexibility with willingness and ability to identify feasible options to choose from and to act quickly and decisively in response to competitive change. The greater the volatility and uncertainty in the industry and markets, the greater the value attached to marketing flexibility. Marketing flexibility is therefore a construct, which discriminates between companies' levels of adaptability and responsiveness in markets. A firm with a high marketing flexibility will be able to overcome mobility barriers in markets faster and more efficiently than its competitors. Marketing flexibility tends to lower the risk of the firm and thus increases its economic value.

The following example will illustrate marketing flexibility: Assume that two identical firms A and B are both differentiators in a market with one cost leader. The only distinction between the two is that firm A has a high level of marketing flexibility and firm B a low level. If an opportunity arises in the market, such as the exit of the cost leader, and the assumption is made that the competitive strategy of A and of B is to take over the cost leadership, it is hypothesised that it is more probable that A will be successful in taking over the cost leadership than B as it has more strategic options

to choose from, coupled with a greater ability to act quickly and cost effectively in seizing new marketing opportunities. It follows that in valuing firm A and B, a greater value should be attached to the former because of its marketing flexibility.

Harrigan (1985, p.1) recognises the existence of marketing flexibility, although she uses the term “strategic flexibility”. She defines strategic flexibility as a firm’s ability to reposition itself in a market, change game plans, or dismantle current strategies when the customers it serves are no longer as attractive as they previously were. Unfortunately organisations often ignore the issue of strategic flexibility or marketing flexibility in their competitive strategies. These firms become inert, rigid and remain in the same strategic positions in markets. Such positions often become progressively obsolete in times of rapid change.

Information on marketing flexibility should of necessity focus externally on the environment, on its existing and future customers, on market segments and target markets and on its existing and potential future industries. This type of information is useful to management in decisions on positioning the firm within global markets. Marketing flexibility information provides users with information on how quickly, cost effectively and successfully a company will be able to reposition itself in global markets. It allows firms to switch between markets or move business between markets if conditions change and become more or less favourable. The higher the level of competition in markets, the more unstable the markets are as a result of fragmentation. The younger the industry and the more volatile the demand and supply, the higher the marketing flexibility needed by firms for survival.

Traditionally, the management accounting system has concentrated on analysing the firm’s results in isolation, and only corrected actual performance or the plan if there was a deficiency (CIMA, 1997, p.173). Such a system does not assess the key issues that organisations face when developing a marketing strategy. Neither the management accounting nor financial accounting system is structured to deal with information on competitor or industry analysis, market positioning and marketing flexibility. The accounting information system can however be adapted, expanded or changed to accommodate indicators of marketing flexibility and other types of information on flexibility. The following information and ratios may serve as indicators

of the level of marketing flexibility of a firm and may therefore be useful to users of accounting information:

- Information on the range of target markets;
- Information on markets entered and exited during the period under review;
- Information on the competitive strategies of businesses, such as cost leadership or differentiation and changes therein;
- Analysis of the maturity and concentration of the markets in which a company competes in order to determine required flexibility levels;
- Turnover obtained from new markets which are entered;
- Turnover from new or improved products;
- An identification of competitors, potential competitors and their competencies;
- The approximate market share in each market and changes therein;
- An analysis of the marketing flexibility of competitors;
- The number of new markets created through the use of technology, research and development and development of products;
- Product life cycles in target markets;
- Significant events, threats and opportunities experienced in markets during the period under review;
- Significant events, threats and opportunities expected in markets in the foreseeable future; and
- Expected growth of markets.

To internal users the access to information on competitors and marketing flexibility is limited only by their requirements, cost versus benefit constraints and the ability to create appropriate indicators. CIMA (1997, p.72) suggests that sources of competitor data may include information read in financial reports, job advertisements and the financial press, gained from shared customers and suppliers and the inspection of competitors' products (benchmarking) and gathered from former employees. External users of information may use other sources to gain information on the competitive position and marketing flexibility of the firm. However, many such users lack the time, resources and expertise to complete the detailed analysis performed for management. As preparers of the financial reports have often gathered and

processed the information on competitors already, it can be argued that they are best placed to communicate and explain the information to other stakeholders of the firm. One problem is that the disclosure of information on strategy to external users is often viewed as potentially damaging to competitive advantage. A fine line exists between disclosing strategic information that may be harmful to the company and its stakeholders and disclosing strategic information, which is already available to the competitors of the firm, and may be compiled for the organisation's external stakeholders.

7.3.3 Financial flexibility [University of Pretoria.etd](#)

Financial flexibility can be defined as the balancing of cash inflows and outflows. It is also created through short business and cash cycles. In financial reporting the role of the cash flow statement is to reflect, *ex post* the balancing of cash flows. The role of financial flexibility is to create and prioritise potential sources of cash so as to balance the operating, investing and financing activities of the organisation, particularly with regard to unexpected future cash inflows and outflows. Financial flexibility can also be viewed as the creation of a number of feasible financial options for changing the current cash flow patterns of the company. The greater the feasible alternatives open to an enterprise, the higher its potential level of financial flexibility. However, the relationship between the number of options and the level of flexibility is unlikely to be linear. The feasibility and quality of the options also impact on the financial flexibility of the firm. A high level of financial flexibility reduces the number of threats, and increases the available opportunities to the enterprise (Koornhof, 1988). It gives management some measure of control over a volatile environment.

Financial flexibility is a category, which usually interacts with other categories of flexibility. The interaction of financial flexibility with production and marketing flexibility can be illustrated as follows: Assume company A manufactures a product X and that it has no excess capacity. While scanning the markets of product X, the management identifies the probable exit of a cost leader of the same product, which creates an opportunity. In order to meet the increased demand for product X in such an event, company A should increase its capacity to manufacture the product. Management proposes the acquisition of another machine for this purpose. There are various funding alternatives, which, if they are feasible, are indicative of the financial flexibility of the company. They include financing through unused lines of credit, a finance lease agreement, the sale of a separable non-operating asset, or the sale and leaseback of existing machinery. The source of finance which company A chooses will affect its future financial flexibility and risk profile. The ability of company A to exploit the opportunity by increasing its market share of product X arises from its marketing flexibility. The increase in its capacity through the purchase of a machine impacts on its production flexibility, while the available financing alternatives relate to its financial flexibility.

The value of financial flexibility does not arise from being able to respond only to foreseen threats and opportunities. Indeed its main value lies in the ability it provides management of an organisation to respond quickly and cost effectively to unforeseen threats and opportunities. The four strategic aspects of range, time, cost and quality apply to financial flexibility as they do to all other categories of flexibility (see figure 6.11).

Different approaches may be adopted by management to create financial flexibility. One strategy would be to maintain large reserves of financial resources in cash or unused borrowing power (financial slack) so that when an unforeseen change takes place in the competitive and cash flow position of the organisation – such as the introduction of new products or new technology – the organisation can respond quickly and with considerable economic muscle (Donaldson, 1971, p.316). This approach increases potential financial flexibility in the firm, enabling it to respond to increases in required financial flexibility.

Another approach would be to invest financial resources in aggressive marketing, product development and research – so that the company's flexibility lies in being and staying ahead of its competitors, in initiating change and proactively influencing the environment rather than responding to it. This management approach would reduce uncertainty and volatility in the environment and lower required financial flexibility. A third approach may be to increase the cash flow tempo of the firm and monitor the levels of committed and uncommitted cash.

Donaldson (1971, p.302) undertook three case studies on management practices for the creation of financial flexibility. He then developed a strategy for managing the levels of financial flexibility in an entity which consists of the following four dimensions:

- An evaluation of flexibility resources for specific contingent needs. Management specifies the foreseeable circumstances (for example business recession) against which it wishes to be insured. It then obtains a quantitative

measure of the range of potential cash deficits together with a quantitative measure of the available resources of cash flexibility to cover the deficit.

- An evaluation of the flexibility resources at the planning horizon. This dimension divides future time into the period covered by detailed forecasting and financial plans and the time beyond that planning horizon. The evaluation of resources of financial flexibility at the horizon is intended to be responsive to the needs for flexibility during the relevant time period even extending beyond the period of specific planning. This is in line with the requirement that financial flexibility should enable management to deal with both foreseen and unforeseen change.
- The establishment of priorities to determine the sequence in which several sources of flexibility will be committed. This results in the matching of the anticipated need for cash with the most appropriate source of cash, bearing in mind the magnitude, certainty, predictability and speed with which the cash will be required.
- The implementation of a strategy of flexibility is based on continuous negotiation because the relocation of financial resources requires the collective agreement of several people both inside and outside the business, who often have different viewpoints.

The usefulness of information on financial flexibility to stockholders is well recorded. In the USA the FASB (1978) concluded that financial reporting should provide information that is helpful in assessing the amount, timing and uncertainty of prospective cash flows of an enterprise. SFAC No.5 (FASB, 1984) elaborates further on the use of cash flow changes, stating that statements of financial position include information that is often used in assessing an entity's liquidity or financial flexibility. Hendriksen and Van Breda (1992) believe that information regarding solvency and financial flexibility help investors and creditors to predict cash flows more accurately by permitting predictions of the probabilities of future returns and not only of expected values. The AICPA (1993, p.56) states that whether an entity will be able to carry out its plans and objectives in the normal course of business is often a function of its financial flexibility. It is suggested that users of financial statements need to know

about an entity's financial flexibility or its lack thereof, when it is reasonably possible that such flexibility will be called upon in the future.

In Financial Accounting several attempts have been made by standard setters to include information on financial flexibility in financial reports. The first significant document on the disclosure of financial flexibility was issued as a Discussion Memorandum by the FASB in 1980. In this DM financial flexibility is viewed as a measure of the adaptability of a business and it recommends the disclosure of the following items in the financial statements:

- How soon investments can be converted to cash;
- The ability to obtain additional financing;
- The amount of operating assets;
- The ability to increase short-term fund flows by modifying operating and investing activities, including the ability to discontinue operations or sell operating assets.

As a result of the FASB's DM and the research of Donaldson, the term "financial flexibility": appeared in a number of accounting exposure drafts and statements on cash flow information (see for example FASB, 1986; FASB, 1987; SAICA, 1985; SAICA, 1986). Unfortunately it was mainly limited to cursory references to and explanations of financial flexibility and the proposals of the FASBs Memorandum remains largely unimplemented. In 1993 the AICPA attempted once again to address the disclosure of information on financial flexibility in an Exposure Draft. The ED used a much narrower definition of financial flexibility than those in both the FASBs DM of 1980 and SFAC No.5 (1984), and effectively deals only with the ability of the enterprise to fund shortfalls in expected cash payments over cash resources. The ED contains a requirement that a discussion has to be included in the notes to the financial statements regarding management's expected course of action in cases where it is reasonably possible that the entity will not have the ability over the shorter term to pay its expected cash outflows without taking certain actions. This information allows users to identify and develop the most probable scenarios, should unexpected threats or opportunities occur. Such actions include the following:

- Borrowing directly or indirectly;
- The liquidation of assets, either directly or indirectly;
- The enactment of new taxes;
- The reduction of costs;
- The reduction of dividends;
- The reduction or elimination of services;
- Capital stock issues; or
- Filing of bankruptcy protection.

In some of the comments received on the ED serious reservations were expressed about the disclosure of information on financial flexibility, the argument being that the cost of the necessary disclosures would exceed the benefits, particularly for small, privately owned entities. When the ED was finally issued in 1994, it excluded any requirements to disclose information on financial flexibility, which was identified in the comment on the draft as its most controversial requirement.

In 1978 Heath already expressed the opinion that more research was needed to determine which ratios or other indicators could be used to measure financial flexibility. Koornhof (1988) identified four major sources of financial flexibility that may be useful to the stakeholders of an organisation:

- The potential for utilising finances. This includes the ability to raise and repay equity capital and outside finance and to change existing financing structures;
- The potential for altering investment strategies by disposing of non-operating and separable assets;
- The potential for altering operations by changing cost structures, pricing policies and product mixes; and
- Other quantitative and qualitative information that could potentially change existing cash flow patterns, such as future expansion and diversification plans, capital commitments, changes in group structures and company strategy.

Examples of indicators and information that may be useful include *inter alia*:

- A table of summarised indicators, including the cash flow cycle, recovery rate and borrowing capacity;
- Ratings of commercial paper, bonds and preferred stock;
- The amounts of unused lines of credit;
- Restrictions on the sale of assets, on additional financing in loan and other agreements, and in the Articles of the company;
- The amount and market value of non-operating assets;
- Information about the separability of assets;
- Segregation of discretionary and non-discretionary expenses;
- Ratio indicators included in contracts;
- Commentary in the form of a management discussion and analysis of aspects such as financial policy, planned capital expenditures and expected sources of financing;
- Information about variations in financial flexibility within a period (FASB, 1980b);
- The cash flow cycle and the discretionary and non-discretionary portions of existing cash resources;
- Information on future changes in production, reorganisation of production lines, the introduction of new products and discontinuance of existing products, and the business cycle;
- Information on company strategy regarding financial flexibility;
- The target indicators and/or ratios set for required financial flexibility compared to actual financial flexibility;
- Information on foreseeable threats and opportunities that may impact on financial flexibility;
- A list of sources of cash prioritised in order of possible use; and
- Information about agreed on future reallocations of resources.

The function of financial flexibility is to ensure that an entity will be able to carry out its plans and objectives in the normal course of business (AICPA, 1993). It enables the entity to adapt to a changing environment by having access to sufficient funding to avert threats and exploit opportunities. It provides management with a means of controlling, to some extent at least, a volatile and dynamic environment.

7.3.4 Informational flexibility

Informational flexibility refers to the ability of a company to alter and adapt its information system in response to the changing demands for information from its users. Ward (1992, p.298) suggests that the accounting information system must be sufficiently flexible to adjust to each new set of critical success factors. An organisation with informational flexibility produces reports that are communication tools rather than just compliance documents and focuses on the needs of their clients – the users of the information.

Technology may be used to make an information system more flexible through the design of flexible software and hardware configurations. It introduces new methods of data collection, processing and business reporting to fulfil the changing and expanding information needs of the users. Technology allows communication processes to become faster, efficient, powerful and more flexible. Ernst & Young (1995) submits that the progress in technology in collecting, analysing and disseminating information, threatens to make the traditional cycle of annual and quarterly reporting irrelevant. Informational flexibility is largely a function of technological advances which allows one rapid and accurate access to and processing of information.

On the other hand, technology can increase the informational inflexibility if it is used incorrectly. Pasmore (1994, p.77) noted that a lack of technical flexibility is rarely due to the limits of technology. More often the lack can be ascribed to human limits in the sense that people may ignore the need for it, fail to provide for flexibility in the system design or allow too much flexibility into the system. Too much flexibility poses a particular threat to informational flexibility, namely the threat of complexity and entropy. Peters (1991, p.589) notes that the need for flexibility in an increasingly complex environment requires information systems to be simplified so that they can be amended, altered and expanded in response to changing demands for information.

A process of continuous improvement in the information systems and the creation of flexibility requires the removal and elimination of waste, duplication and, redundant information and processes. This implies that the organisation needs one flexible information system that can cater for the needs of all users. The creation of two information systems to service the differing needs of internal and external users would represent a form of duplication and thus waste. Removing for example unnecessary and costly data capturing and processing procedures can also reduce waste in the information system. Johnson (1992, p.128) notes that companies such as Hewlett Packard and Harley-Davidson are celebrated for making dramatic reductions in cost and effort in tracking accounting transactions, following on their earlier successes in simplifying work and reducing resources in production processes. In their case study Turney and Anderson (1989) found that many of companies' existing accounting systems were obsolete as they were designed to collect data that no longer existed, such as inventory in a JIT environment or reported information that was no longer used by management.

Information on the flexibility of information system is useful because an organisation with a high level of such flexibility will be able to generate information required to support decision making faster and more efficiently and cost effectively than its competitors while still maintaining informational quality and integrity. In theory, the users of information in these flexible firms should be able to make more informed and timeous decisions about the future. The financial and business reporting function will add value to the organisation and management if the function is treated as a flexible programme that extends beyond the annual financial statements and traditional performance measures.

From external users' perspective, informational flexibility enables organisations to meet their changing needs through flexible reporting. In a flexible reporting approach there is recognition for the fact that the needs of users differ and it is suggested that the types and timing of information in business reporting can be customised to meet both users' needs and cost constraints in particular circumstances (AICPA, 1994a). A proposal of the Jenkins Report (1994a, p.52) is that private companies and external users should negotiate and agree on the following aspects of reporting:

- The type of information; [University of Pretoria.edu](http://UniversityofPretoria.edu)
- The frequency of reporting;
- The time frame of reporting;
- The timeliness of reporting;
- The extent and nature of auditor association.

Such an approach to business reporting will still require firms to have high levels of informational flexibility in order to respond to the changing demands and agreements of their users for information.

Business reporting by public companies must meet a broad range of users' needs for company-specific information. The communication of such information should not, however, be restricted to the financial reports. There is an increasing demand for operating and other non-financial information. Technology can support the introduction of more flexibility into reporting to accommodate these changing needs. The Task Force of the Canadian Institute of Chartered Accountants task force is currently reviewing the Jenkins Report and will make recommendations on areas for further consideration and amongst others on new methods of business reporting in an electronic environment (Ernst & Young, 1995). In the United Kingdom a survey of 120 larger companies indicated the main benefit of information technology in the future is expected to come from improvements in the speed, accuracy, reliability and flexibility of information provision in key areas such as costing, pricing and management information. The ICAS (1988) suggests that electronic means may be used cost effectively in future to communicate information, and the SEC of the USA is already using an electronic data gathering and retrieval system (AIMR, 1993).

The level of informational flexibility in a firm can be assessed by indicators such as the response time required to meet new information requests, the number of problems addressed in the system during a specified time span, the number of subsystems changed, the number of new systems introduced, changes to the gathering and processing of information, the number of instances in which redundant information was removed and the access time required to obtain information.

Information on the structure of the accounting function may also be indicative of the informational flexibility of an organisation. Informational flexibility requires a decentralised accounting function in which accountants are multiskilled members of crossfunctional teams. Informational indicators may be communicated to internal users through reports and summaries. Required targets should be communicated with reference to the actual indicators, and the progress towards meeting the required targets should be monitored constantly.

Assessing the level of information flexibility from an external user's perspective becomes more problematic especially where direct electronic access to information is not available. Indicators of the informational flexibility of the organisation may be based on the use of electronic processing as stated in the financial reports or press. Further indicators may be the use of the Internet and Intranet in the organisation, a willingness to experiment in financial reports, a short response time to specific queries and a willingness and ability to obtain information not specifically produced by the information system.

The introduction of flexible information systems and informational flexibility will enable firms to process vast amounts of information quickly and accurately, and to communicate this information timeously and cost effectively to the various users. In future, the emphasis of the accounting information system will shift from data gathering and processing to communicating information efficiently to users, to establishing and meeting the changing needs of users and to interpreting the information which is provided.

7.3.5 Geographical flexibility

Geographical flexibility refers to the flexibility gained by companies that maintain or can cost effectively create a presence in more than one country. This positioning allows them to exploit asymmetries, inequities, inequalities and favourable conditions by switching business or profits between countries. Geographical flexibility concerns the ability of a multinational enterprise to create a hedge against unfavourable governmental practices and uncertainty. It is realised by the interaction between the competitive advantage of firms and the comparative advantage of countries.

Kogut (1985) recognises the existence of this category of flexibility and says that MNEs have flexibility, which permit them to hedge against the uncertainty about future exchange rates, competitive moves or government policy. By internalising tax management and other aspects of government policy, and thus creating geographical flexibility, management can add additional value to a firm. Muralidhar (1992) suggests that investors may find that investing in multinational firms provides more value than purchasing shares in a replicating set of nationals in two countries. The potential value of geographical flexibility increases as the volatility and uncertainty in world markets increase as a result of government policies, labour practices and exchange fluctuations.

Information which focuses on geographical flexibility is useful to management as it allows them to consider options that may enhance the value of the organisation and provides them with a means of effectively limiting the power of government and labour in respect of fiscal, monetary and legal policies. To external users, information on geographical flexibility is useful because companies with high levels of geographical flexibility are in effect less exposed to the risk of unfavourable changes in tax regimes, factor costs and exchange rates than companies with low levels or no flexibility. Users are able to assess more accurately the risk profiles of companies by differentiating between companies with geographical flexibility and companies without such flexibility.

According to Muralidhar (1992) flexibility in MNEs can give rise to major advantages when the demand for products, factor costs and tax regimes are volatile. The advantage can be in the form of real and/or financial flexibility. Here financial flexibility is defined as the ability to shift profits to favourable tax locations while real flexibility is the ability to switch capacity utilisation to the lowest cost location when domestic costs and exchange rates are volatile. Both types of flexibility fall into the category of geographical flexibility. Muralidhar (1992) provides the following examples of the implications of geographical flexibility:

- In instances where tax regimes are variable and less than perfectly correlated between countries, tax savings are possible by shifting income. Enterprises

with international business can therefore improve expected firm value by investing abroad and at home. This will also benefit firms that invest abroad in *anticipation* of possible future tax rate changes at home, even if the current expected after-tax rate of return at home is greater than the current tax rate of return abroad. It follows that the greater the expected volatility in tax regimes, the greater the value of geographical flexibility.

- In instances where corporate tax obligations are variable and multinational firms have geographical flexibility in the form of an option to shift profits to favourable tax locations, the traditional net present value analyses of foreign projects do not capture the value of this flexibility. The options pricing models used in decision making should include the value of the geographical flexibility component of such foreign projects.
- When multinational firms have geographical flexibility, in the form of the option to switch production to the lowest cost location when either factor costs or exchange rates change, the net present value analyses of foreign projects will again not capture the full value of this type of flexibility. An option pricing model should be used to value the geographical flexibility component of such foreign projects and the value should be included in the net present value models prior to decision making.

With regard to geographical flexibility, Kogut (1985) comments that the unique content of a global versus a purely domestic strategy lies less in the methods used to design long-term strategic plans, and more in the construction of flexibility which permits firms to exploit uncertainty over future changes in exchange rates, competitive moves or government policy. He uses the term “strategic flexibility” rather than “geographical flexibility” in his research and identifies two subcategories of flexibility, namely the arbitrage of market imperfections, and leverage by which a firm’s position in one national market is enhanced by its position in a second market. Arbitrage opportunities reflect the exploitation of price differences in assets or factors of production between markets and include production shifting, tax minimisation, arbitrage in financial markets through imbalances in government policies and information arbitrage through imbalances in information on seller and buyer distribution, innovation, research and development, and accounting practices.

Leverage opportunities reflect the creation of market or bargaining power as a result of a global position (including global co-ordination and the ability to differentiate prices in response to changing markets) and political risk (which is the bargaining power gained by having dispersed operations) (Kogut, 1985).

The accounting information that may be used to monitor and develop the geographical flexibility of an organisation includes an overview of the geographical locations of businesses together with the results, relevant financial and non-financial information of each segment or strategic business unit, including the results, net cash flows, asset base per business segment, as well as the number of employees, number of units produced, number of units sold, orders received per segment, idle capacity, and a comparative analysis of the taxation, legislature, labour practices and governmental policies of the countries where businesses are located. The following may also be included:

- A summary of the relevant changes that have taken place in countries during the period under review;
- A summary of the expected changes in the countries where businesses are located with regard to such aspects as tariffs, labour, taxation and company legislation;
- Changes in business location and redirection of business activities as a result of geographical flexibility options being exercised;
- Information on recent exchange rate fluctuations between the countries where businesses are located;
- Information on the costs involved in changing from production locations and tax regimes;
- Information on geographical flexibility capabilities that may be created in a short period of time and on a cost effective basis, such as the existence of agents, branches and licensing agreements; and
- Information on arbitrage opportunities exploited during the current period.

Certain information on geographical flexibility, such as the shifting of profits between countries through transfer pricing to benefit from inequities in tax legislation may be

of a sensitive nature. Consequently, access to it may be restricted to internal users, for governments are aware of and seek to limit such practices. These practices are however difficult to control and the introduction of common or at least comparative tax systems may be a possible solution. Lessard (1979) noted in this regard that it seems quite natural that if internal financial transfers are unconstrained and uncontrolled, tax factors could magnify the global distribution of tax revenues.

Accounting standards currently exist in several countries requiring the disclosure of the geographical distribution of business segments. However, these requirements are often limited to aggregate amounts of income and assets per segment, which is of limited use in assessing the levels of geographical flexibility available to enterprises. The statements may also require disclosure of transfer pricing policies. It is therefore not surprising that companies are very unwilling to disclose their policies on geographical flexibility and arbitrage on the one hand, while governments are increasingly concerned about controlling such practices on the other.

7.3.6 Human, cultural and organisational flexibility

This category is arguably the most important and pervasive source of flexibility in the organisation and is also the most difficult to measure. For this reason it is a category that has been largely ignored and excluded from the traditional information system in organisations. This category really consists of four subcategories:

- The managerial capabilities for creating flexibility;
- The capabilities of employees to be flexible;
- The creation of a corporate culture which supports flexibility; and
- The use of an organisational structure which fosters flexibility.

Flexibility in the other five categories cannot be achieved unless the people in the organisation are flexible and responsive to change. This category therefore underlies the creation of flexibility in the other categories.

The capabilities of management for the creation of flexibility arises from their ability to progressively replace specialised routines with dynamic capabilities (Volberda, 1998). Specialised routines originate from management's ability to replicate tasks performed in the past while dynamic capabilities require management to solve complex non-routine problems. Specialised routines are suitable in stable predictable times while dynamic capabilities are required in volatile, unpredictable times. The management capabilities used to create flexibility should therefore be aligned to the level and nature of change and volatility in the environment. Management capabilities are based on the variety of alternatives and the speed within which these capabilities may be utilised.

Volberda (1998, p.418) identified four types of flexibility, namely steady-state, operational, structural and strategic flexibility. Examples of operational flexibility include the ability to change production volumes (also called volume flexibility), build up inventories and use temporary labour and outsourcing. Structural flexibility is seen in the ability to create crossfunctional teams, alter control systems, allow suppliers to develop sub-components and install JIT. Strategic flexibility is apparent in the ability of management to change current strategy, introduce new technology and products, raise mobility barriers in markets (marketing flexibility) and use arbitrage to control government actions (geographical flexibility). Information on the above examples provides users with an indication of the level of flexibility created by management.

Some people are more flexible than others and people with inflexible attitudes and mind sets often inhibit the flexibility of the organisation and the creation of a culture of flexibility. Pasmore (1994, p.47) identified flexible people as open minded, willing to take reasonable risks, self-confident, concerned and interested in learning. They are creative and willing to experiment with new behaviours in order to make better choices about viable alternatives in given situations. They are able to learn from own experience as well as the experience of others and are not opposed to new ideas or bound by tradition. They possess basic skills that allow them to adapt readily to new circumstances and view themselves as able to make the best of opportunities. Such employees are active, resourceful, curious and good communicators and listeners. Flexibility may be cultivated among employees by using approaches developed in the behavioural sciences, such as participation (Coch & French, 1948; Lowin, 1968;

Argyris, 1964), although the results obtained from participation research is often conflicting. New variables, deterrents and explanations are constantly being added in efforts to resolve the mixed research results in this area.

Corporate culture refers the set of beliefs and assumptions held commonly throughout the organisation (Bate, 1984). For an organisation to become flexible, flexibility should become part of corporate culture. Volberda (1998) suggests that a conservative culture restricts the potential for flexibility while an innovative culture enhances such potential. Four aspects determine whether a culture is conservative or innovative:

- Identity formation – how pervasive are views on the identity of the organisation. A heterogeneous identity with a broad scope makes the organisation more susceptible to flexibility.
- Leadership – a delegative leadership with an attitude of improvisation is more conducive to flexibility.
- Unwritten rules – broad, tacitly understood rules which direct the actions of employees. If these rules create an environment tolerant to ambiguity and change and support weak socialisation and discipline, the environment will be conducive to the enhancement of flexibility; and
- External orientation – the beliefs about the relationship between the organisation and its environment. If the focus is long term, the system is viewed as open and planning is directed towards creating an idealised future vision, which enhances flexibility (Volberda, 1998, p.165).

The more tangible area of this category lies in the flexibility that can be created in the manner in which an organisation is structured. A hierarchical structure with formal lines of authority, job descriptions, clearly defined functions and control systems destroy organisational flexibility, while a fractal or organic structure using crossfunctional self-focusing teams, rudimentary control systems and a flat hierarchy will serve to develop and support this flexibility.

The development of flexibility in an organisation is a process rather than a goal. As such, it is not the basic structure of the organisation that enlarges its potential for flexibility, but rather the opportunity and ability to continuously rearrange the structure (Volberda, 1998). The structure of the organisation should be aligned to the extent and type of change in the environment. In times of discontinuous change and high volatility the organisational structure should be organic and open, so as to increase its exposure to the environment and allow the reshaping of its structures to take place. During stable times with incremental change, more mechanistic and closed system structures with comprehensive planning systems and control systems will be appropriate. Volberda (1998) contends that the flexibility potential does not arise only from the nature of the organisational form and the planning and control systems, but also from processes of decision making, co-ordination and execution. He includes aspects such as

- the regulation of tasks through the division and interchangeability of the work force;
- the regulation of behaviour through specialisation, formalisation and training;
- the regulation of mutual adjustment by means of flexible mechanisms that encourage informal relationships in organisations (for example liasing and interdependencies); and finally
- the regulation of decision making, based on the extent of delegation and participation.

The issues of human and organisational flexibility and their measurement in an organisation have not been addressed in the accounting literature. Consequently there are no guidelines as to what indicators may be used to assess the flexibility of people in the organisation and the levels of success in creating a corporate culture or a structure which is conducive to flexibility. The use of surrogate measures such as the extent of innovation and creativity in the organisation and extent and content of training programmes, may be considered. The importance of flexibility to an organisation may be advanced further if flexibility measures are used as the basis for incentive schemes or criterion in new appointments. Opinion polls and qualitative scales may provide another means of assessing this type of flexibility. Information on

this category of flexibility is likely to be mainly qualitative, because it is constrained on the one hand by the difficulty of measuring human and organisational flexibility and the reliability with which such aspects can be measured and by the lack of research in this area on the other. However, this should not prevent stakeholders from attempting to measure this very important and fundamental source of flexibility in organisations, for it has or can have a number of benefits, such as the following:

- It will make flexibility and strategy more visible;
- Through measurement, it will be possible to determine whether predetermined goals were attained and if necessary, to revise aspiration levels;
- It will serve to establish decision-making norms; and
- Measurement will make the area appear more concrete and manageable.

7.4 Procedures for measuring and reporting on flexibility

The measurement of flexibility is an area which requires further research. Measurement allows management and accountants to assess the current position of the organisation regarding its flexibility and then to specify the levels of flexibility that should be attained in response to changes in the environment. Furthermore, it allows management to monitor progress, create further flexibility, make flexibility more visible to employees and to incorporate flexibility more effectively into their strategic decision making. Gerwin (1993) suggests that the main stumbling block to advances on both the theoretical and applied fronts is the lack of measures for flexibility and models for establishing its economic value.

In this chapter the development of measures for flexibility rather than its economic value is addressed. It is proposed that an evolutionary approach be followed in the development of flexibility indicators. This implies that individual organisations should develop their own flexibility measures. Such development will probably result in the emergence of a number of generally used indicators of flexibility (figure 6.16). It is hypothesised that these measures may be used to

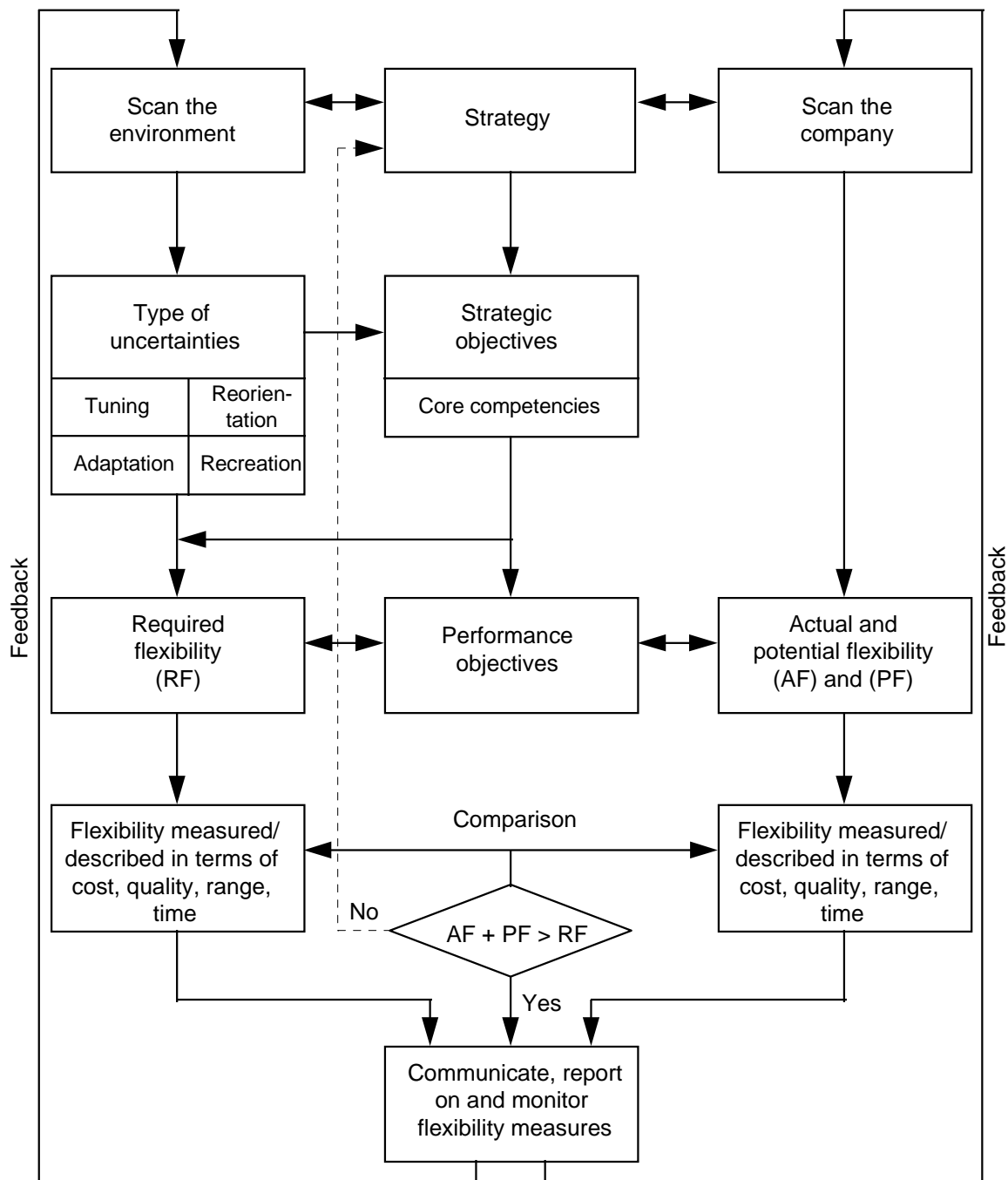
- develop industry indicators; [University of Pretoria.etd](http://www.uct.ac.za/~lib/University%20of%20Pretoria.etd)
- develop scales for assessing organisational flexibility;
- refine existing proposals to value flexibility in organisation; and
- refine existing models such as failure prediction models and DCF models.

The purpose of this section is to provide comprehensive procedures to management and accountants that may serve as guidelines for the development of flexibility measures in their organisations. The development of the procedures have been based on the following research:

- The nature of change and the responses thereto, that is, the tuning, adapting, reorientation and recreation described by Nadler and Tushman (1995);
- The types of flexibility, that is, actual, potential and required flexibility suggested by Gerwin (1993);
- The necessity of concentrating on core competencies, proposed by Prahalad and Hamel (1990);
- The idea of assessing flexibility in terms of cost, quality and time, developed by Ansari *et al.* (1997) and range and cost suggested by Slack (1983);
- The process for determining flexibility requirements by identifying the nature of uncertainty, the strategic objective and then the flexibility objective, developed by Gerwin (1993); and
- Both General System Theory and the work of Volberda (1998) on the FAR system in the logical sequence of procedures.

The suggested procedures to be followed by management and accountants in measuring flexibility are illustrated in figure 7.2.

Figure 7.2 : Procedures for developing flexibility measures



Source: Own observation.

The development of flexibility commences with scanning of the environment in order to identify the nature and pace of change. Volberda (1998, p.235) suggests a structured survey of environmental turbulence to assess the extent of change and uncertainty in the environment. The nature of change in the environment could be either incremental or discontinuous, and the predictability of change will result in

either anticipated or reactive action. This forms the basis for the response of management. The management actions are tuning, adapting, reorientation and recreation. When tuning or adapting is required, management uses its knowledge of the uncertainties and corporate strategies to develop specific strategic objectives. These strategic objectives should be concentrated on the core competencies of the organisation through which the firm can develop competitive advantage. The strategy objectives are refined to identify the specific areas in which flexibility should be developed. Management identifies required flexibility as the benchmark towards which the organisation should aspire and it is identified on the basis of the environment scan. Once the required flexibility mix has been identified, the performance objectives can be identified which form the basis for the development of required flexibility indicators.

Next the current status of these types of flexibility in the organisation are determined. The actual and potential flexibility of the firm are established through a scan of the company and its task environment. Actual flexibility refers to flexibility capabilities already in use while potential flexibility refers to unused capabilities which may be activated almost immediately at a low cost. The steps in the development of flexibility indicators illustrated in figure 7.1 have been incorporated into the more comprehensive procedures in figure 7.2.

Once the required mix of flexibility has been determined, the accountant should develop accounting measures, which indicate the current levels of flexibility (actual, potential and required) and which may be used to communicate, report on and monitor progress towards predetermined objectives. These flexibility measures may be of a financial or non-financial, or a qualitative or quantitative nature and will be measured in relation to competitors in the four strategic areas in which they may be outperformed, namely the cost, quality, time and range aspects (see figure 6.7). The required flexibility measures are then compared to the actual and potential flexibility measures to identify both areas in which more flexibility is required or areas of excessive flexibility. If the actual and potential flexibility exceeds the required flexibility, the information is communicated and monitored. Excessive flexibility may result in a loss of corporate identity and stability and ultimately in a chaotic firm (Boynton & Victor, 1991; Volberda, 1998). A relatively small surplus of flexibility may,

however, be useful in future responses and may be “banked” until needed. If the required flexibility exceeds the actual and potential flexibility, the firm should attempt to lower the required levels by influencing the environment or alternatively by raising potential flexibility via changes to internal conditions and capabilities. In an attempt to increase potential flexibility, the strategic objectives and performance objectives of the firm may require change. The development of flexibility measures is thus a continuous process of realignment as indicated by the feedback arrows to the start of the process, namely scanning of the environment and the organisation.

These procedures for the development of flexibility measures should be used at different levels. Initially the flexibility position of the SBU or enterprise should be assessed. The measures developed here will probably be largely in the nature of an opinion poll and qualitative and descriptive. The next level would be the analysis and development of measures in the human, cultural and organisational category, a category which is pervasive in the organisation. As stated in a prior discussion, these indicators would mainly consist of qualitative measures, opinions and descriptions unless financial and quantitative surrogates such as the training costs of personnel during a financial period or the number of innovations are used as measures. At the next level the development of measures in each of the remaining five flexibility categories – production, marketing, financial, informational and geographical flexibility – will be dealt with, where applicable.

7.5 Illustrative example

The use of the proposed procedures for developing flexibility measures will now be illustrated by means of volume flexibility. Volume flexibility arises from the ability of the organisation to change its production levels and thereby its volume of products. The management of company A commences the process by scanning the environment, its markets, customers and competitors, to establish the extent to which product demand is likely to vary in the future. Assume that the changes in demand can generally be anticipated and that it has an incremental nature. This requires a tuning management response. Tuning requires limited organisational change such as

improving methods, processes and procedures, introducing new technology or enhancing co-ordination. As a result of the required turning response, management identifies specific strategic objectives, which are derived from corporate strategy and the identified core competencies of the firm. Assume that a strategic objective of the firm is to retain market share. The nature of the flexibility required is identified by management as volume flexibility. The strategic objective and required flexibility are refined into more detailed performance objectives such as the monitoring of customers preferences, the extent of potential changes in demand, the identifying factors affecting changes in demand, the current capacity and the keeping of low stock levels. The nature of uncertainty and stated objectives of the company determine the required level of flexibility. As the level of uncertainty in this example requires tuning, lower levels of a required flexibility may suffice. In instances where a reorientation response is required, higher levels of required flexibility are necessary to act as a buffer against the increased and unforeseen change. The required volume flexibility can be measured using indicators such as the range of product level changes that should be accommodated, the required time span within which the changes in product levels should be effected and the maximum amount of costs that can be incurred in making such changes. An indicator of the quality of products, such as the number of reworked products or the number of rejected products, may be used to ensure that the quality requirements for these products are maintained at a specified level during the change process.

Once the required flexibility has been identified and measured, the management and accountants of company A should identify and measure the actual and potential flexibility in the organisation. This is done by scanning and analysing the conditions and capabilities in the company. The actual volume flexibility is measured by identifying the current range within production levels. The production levels in company A are assumed to be constrained by its existing capacity (acting as a "ceiling") and by its breakeven point (acting as a "floor"). The actual time span of changing production levels can be based on prior experience, incorporating any subsequent changes which may affect the lead time. The accountant of company A costs the process of changing production levels for the different scenarios and uses (probably) an average cost. The quality indicator based on actual reworked products

after changing production levels, acts as a control measure to ensure that the quality is maintained during the process.

Of the three levels of flexibility (required, actual and potential) the latter is the most problematic to identify and measure. Potential flexibility in company A arises from the ability of management to employ existing capabilities and conditions not currently in use to enhance its level of volume flexibility. Management may also extend the potential flexibility of company A by changing capabilities and conditions in the organisation through reorganisation and restructuring. Assume that company A has potential flexibility available from a backup machine that may be used to increase the current capacity. Assume further that employees are currently being trained to become multiskilled. A result of the training is that the lead times and costs involved in a change in production levels will decline substantially.

Once the management and accountant have identified and measured the volume flexibility indicators, the required flexibility indicators are compared to the actual and potential flexibility. In the case of company A it is assumed that the actual flexibility is lower than the required flexibility. However, the actual and potential flexibility, exceed the required flexibility. This implies that management and employees will have to use internal conditions and capabilities to create further volume flexibility as and when required. The accountant may attach a suitable weighting to the four indicators of volume flexibility (range, cost, quality and time) to complete the comparison. These indicators are then communicated and reported to stakeholders. The required flexibility indicator is identified as the benchmark, while the actual flexibility reflects the current position. Employees of company A should strive towards raising the current flexibility to the required flexibility level, by harnessing more of their own and the company's potential flexibility. The process is constantly reassessed by the management in company A, in a process of rescanning the environment and the company for any changes.

7.6 Summary

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Flexibility is the most cost-efficient method for coping with environmental change and uncertainty (Aaker & Mascarenhas, 1984). It is a function of uncertainty. Its value does not lie in the present or the past, but rather in the future. Flexibility allows the management of a firm to partially control a volatile environment by positioning and repositioning the firm in response to changes in the environment. The construct of flexibility is complex, elusive and multidimensional. It is nonetheless a very useful vehicle for creating a robust organisation, which can absorb volatility. To make flexibility visible and monitor progress made in creating and maintaining flexibility, the management and accountants of organisations need to identify, measure and communicate information on flexibility. The measurement of flexibility is, however, an area in which limited research has been conducted. The development of measures of flexibility therefore requires innovation and experimentation within organisations themselves.

There are two main aspects of the measurement of flexibility that should be addressed – the determination of its economic value and the development of flexibility indicators. It is suggested in this chapter that an evolutionary approach be adopted in the measurement of flexibility. Firstly, management and accountants in organisations through innovation and experimentation should develop indicators of flexibility. Some of these indicators will then evolve, through generally accepted usage to industry indicators. Such indicators may then be used to develop scales of flexibility, which will serve to distinguish between flexible and inflexible firms. The indicators may also be used in models to determine the economic value of flexibility and to refine other models, such as corporate failure prediction models, and discounted cash flow models.

In pursuance of this approach the classification scheme proposed in chapter 6 was used in this chapter to develop flexibility indicators in the six categories. In each of the categories examples of flexibility indicators were provided and the means of reporting such information briefly discussed. It is suggested that the most cost effective vehicle for communicating this type of information is the accounting

information system, as it has the necessary infrastructure. The problem that arises, however, is that the accounting system is not geared toward dealing with a construct such as flexibility. This problem may be solved by using a parallel information system, as proposed by Donaldson (1971). However, two information systems are not a cost-effective solution. A more acceptable solution would entail changing the existing accounting information system and using information technology so that the scope of information that is communicated can be broadened. This is an aspect which is discussed in more detail in the next chapter. The chapter concludes by proposing procedures that management and accountants may follow to develop flexibility indicators for their organisations.

The chapter addresses an area in research on flexibility which has been identified as “the single most important research priority” (Gerwin, 1993), namely the measurement of flexibility. The aim has not been to propose a comprehensive list of flexibility measures which should be used by all companies. Instead, examples were used to indicate that many of the categories of flexibility can either be measured or described. Furthermore, an evolutionary approach is suggested for the development of such flexibility measures in organisations. To prescribe flexibility indicators would make organisations inflexible. As a guideline to accountants and managers, procedures are proposed which may assist them in the identification of flexibility information and indicators in their particular organisations. The measurement of flexibility is however, a dynamic and demanding field of study that requires the input of many researchers.

Chapter 8 Contribution of information on flexibility to Accounting

“The world is richer than it is possible to express in any single language.”

(Prigogine, 1984)

8.1 Introduction

In the information age knowledge, innovation and information create competitive advantage for businesses. This new environment poses new threats as well as new opportunities to accountants and accounting information systems. The well-trying methods and approaches used in the past to record financial information in the era of mass production have been found to be inappropriate and inadequate in meeting the new demands for information. Accounting with its information system is an artefact of society which was created to meet the changing needs of that society. If it fails to satisfy such needs, as criticism of the accounting system seems to imply, it will have to adapt (Puxty, 1993).

In chapter 5 it was noted that the accounting discipline has been criticised in particular for being slow in adapting to a rapidly changing business environment. This and other criticisms were converted into challenges, which confront Accounting and accountants in adapting to the new business environment. The challenges are used as criteria to evaluate the contribution of flexibility and information on flexibility to the accounting system. The aim of this chapter is to establish whether the introduction of the construct “flexibility” and the operationalisation of the construct in the form of information on flexibility, will enhance the accounting information system, and address some of its criticisms.

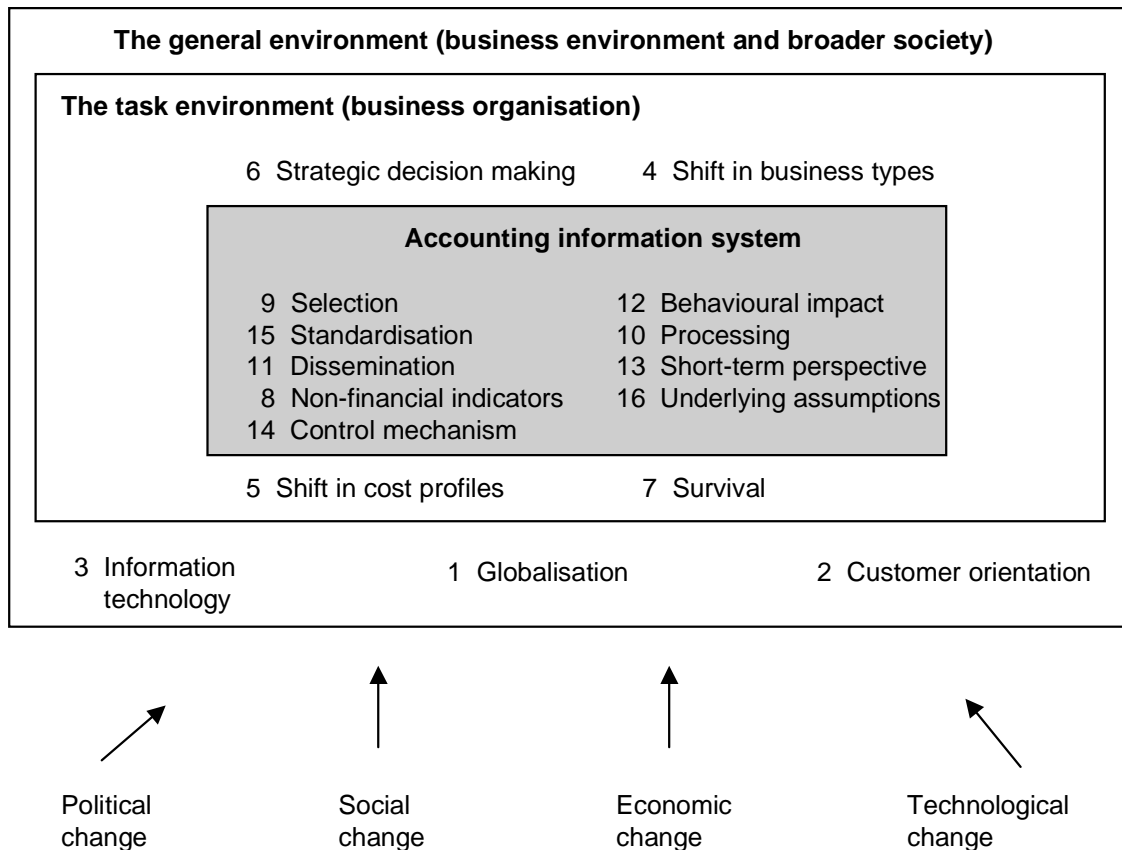
In terms of the Mitroff model, which was used in chapter 1 to describe the scope of the research, this chapter deals with activity 5, namely feedback in a narrow sense, between the solution (circle IV) and the conceptual model (circle II). It tests the feasibility of the proposed solution, that is, the introduction of information on flexibility

into the accounting information system, against the conceptual model, that is, the challenges facing Accounting and accountants.

8.2 The challenges confronting Accounting

Accounting is confronted by a number of challenges in adapting to a changing business environment, which is characterised by an increased use of technology and the growing importance of information. The changing business environment has caused changes in the expectations of users of business information. If accountants and the discipline fail to respond and adapt to these changing expectations, they may lose credibility and their usefulness and relevance. The expectations were expressed in the form of 16 challenges facing Accounting and illustrated diagrammatically in figure 5.2. They are globalisation, customer orientation, information technology, a shift in business types, in cost profiles, strategic decision making, information on survival, non-financial indicators, selection, processing, dissemination, behavioural impact, a short-term perspective, a control mechanism, standardisation and underlying assumptions. The diagram is reproduced in figure 8.1 and the challenges are numbered to assist in an overview of the challenges and their relationship to the firm.

Figure 8.1 Challenges confronting Accounting



Source: Own interpretation.

8.2.1 Globalisation

The *first* challenge that was identified in chapter 5 was *globalisation*, and it challenges Accounting to become a universally recognised business language, which ensures the even-handed distribution of information and efficient allocation of global resources. On the one hand, Accounting should be the vehicle for reporting on the performance of all corporations, including multinational enterprises (MNEs), and it should support decision making in global markets. It should for example support decisions on the location of operations worldwide, positioning in global markets, international taxation, currency fluctuations, listings on different stock exchanges and international legislation. On the other hand, globalisation requires greater harmonisation of accounting practices to allow the performance of companies across geographical borders to be comparable.

Flexibility was identified in chapter 6 as an important element for survival and success of businesses in these highly competitive markets. The introduction of information on the flexibility of corporations enables users to assess the ability of a business to adapt to change in these markets in the future. Flexible companies have a greater probability of survival in an unstable and dynamic environment than do inflexible companies. Global resources should therefore favour flexible companies in unstable times. Information on flexibility should contribute towards a more efficient allocation of global resources and more efficient capital markets.

Information on production flexibility allows stakeholders to assess the ability of the firm to outperform competitors through its production processes, its liaisons with suppliers and its customer-centred production approaches. Information on marketing flexibility provides stakeholders with information on the ability of the management to maintain and expand the firms' interest in existing, new and emerging markets. The geographical flexibility of the organisation identifies the capabilities available to management to control unfavourable legislation, labour practices and currency fluctuations by shifting business locations and profits between countries. The measurement of geographical flexibility should result in management becoming more aware of the potential for adding value to a business by exploiting the comparative advantage of countries. The measurement of geographical flexibility may also sensitise internal and external users to the value that may be added in corporations, which operate in more than one country.

The value of information on these aspects increases when comparable information is available on competitive businesses, allowing a distinction between flexible and inflexible organisations. Information on flexibility may not contribute directly to the creation of a universally understandable business language, a process which is currently being addressed by a number of national and international harmonisation processes. It does however improve the quality of such business information.

8.2.2 A customer-oriented perspective Pretoria.etd

The *second* challenge facing Accounting is that it should become more *customer oriented* by supplying more information on the relationships between businesses and their customers and secondly by becoming more customer oriented *per se*. This challenge highlights a gross oversight on the part of Accounting. Customers are the main source of cash flow and profit to organisations, yet very little information is available on customers in the conventional accounting information system. The inclusion of performance measures such as production flexibility and marketing flexibility should result in the provision of more information on the relationships between a company and its customers via the accounting information system. Information on production flexibility, amongst others, provides an indication of how quickly, efficiently, reliably and at what quality level an enterprise can respond to the changing needs of its customers in comparison with its competitors. The development of production flexibility performance measures will require the gathering of more information on customer profiles, relationships, needs, feedback, complaints, etc. The measurement of marketing flexibility also requires a customer-oriented focus, though from a market perspective. The accounting information system will need to gather and analyse information on the existing and potential markets of a company as well as its positioning and repositioning within these markets.

An important contribution of informational flexibility is that the accounting information system itself will become more customer or user centred. This means the changing needs of its users will determine the output of the information system and the output will in turn determine the nature of the information system's input and processing. This is however a complex issue because accountants do not agree on the needs of especially external users, and limited research has been done in this regard (see the Jenkins Report, AICPA, 1994a). The development of a customer orientation in Accounting in the first place requires the building of relationships with internal and external users and research on their needs. Only then can the means of satisfying such needs be considered. Furthermore, it will of necessity be an ongoing process because the needs of users evolve as the business environment changes. The speed, quality, cost and range within which these changing needs are addressed is a function of the informational flexibility of the organisation.

Information on this type of flexibility will be useful to users in assessing the ability of the organisation to respond to their informational needs. However, this challenge will only be truly addressed if accountants become more customer aware themselves. This requires a change of attitude on the part of existing accountants and a reassessment of the education and training of future accountants.

8.2.3 Information Technology

Accounting practitioners and researchers are confronted by the challenge to fully utilise *technology* in recording, processing, reporting, disseminating and communicating information. It also refers to recognising, measuring and reporting on the efficient use of technology elsewhere in the organisation. Technology can be used to introduce flexibility into the production system via CAD/CAM systems as well as into the information system by means of databases, controlled electronic access, flexible software programming and flexible hardware configurations. Because the accounting system was one of the first major commercial users of early computers, there is still a tendency to regard the ability to process large volumes of data rapidly as the only benefit of computer power. The additional benefits of selectivity, analysis, prediction, accuracy and storage with retrieval on demand are to a large extent ignored (Ward, 1992). Another aspect which is often ignored is the possibility of allowing users direct electronic access to the data base of the organisation. Such access can be controlled and menus would enable stakeholders to extract the information they require.

Just as the limited use of technology in Accounting could be regarded as “misuse”, so too technology for example FMS can be used incorrectly for mass production instead of the production of small runs of customised products (Jaikumar, 1986). The incorrect use of technology creates inflexible rather than flexible companies. Information on flexibility does not solve the problem of the inappropriate use of technology, but it does inform users on what is used and how efficiently technology is being used in the organisation. It also indicates what flexible capabilities are created through the use of technology. Informational flexibility indicators measure the ability of a company to alter and adapt its information system, while other flexibility

measures assess the ability of other systems to respond to for example to the changing demands of customers for products or users for information. The higher the levels of informational flexibility that is achieved in a corporation, the quicker it can produce the necessary information for informed decision making. The correct use of technology may make the information system more flexible than those of competitors.

Although Accounting does not contribute directly to the introduction or implementation of technology, it can provide incentives for improving information performance and measure the progress made towards achieving predetermined performance goals. Where organisations aim to gain competitive advantage by using technology more efficiently than competitors, information on flexibility is useful for assessing company performance, its risk profile and its competitive ability to both internal and external users.

8.2.4 A shift in business types

A shift has taken place in *business types*, with the number of mercantile and manufacturing firms declining and the information and service based companies increasing. Therefore the *fourth* challenge confronting Accounting researchers is to develop a system more suited to reporting on the latter type of companies. This change requires an accounting model which increasingly recognises and measures elements such as human resources, knowledge, innovation and the use of technology, in other words, elements that are now recognised as major resources in information and service organisations. The increased complexity of businesses as a result of a diversity in products, markets and services also places an added strain on accounting rules and theories which were originally developed for less complex trading organisations (Eccles, 1991, p.132). This does not mean that information on flexibility is not also applicable to trading and manufacturing firms, but only that the importance attributed to each of the categories of flexibility may differ depending on the type of business. Thus a manufacturing concern places more emphasis on production flexibility, while an information based concern emphasises human flexibility and informational flexibility. The fact that the accounting model was originally developed for trading concerns and was later amended for manufacturing

concerns does however mean that it can accommodate information on production flexibility more easily than is the case with information on human, cultural and organisational flexibility and informational flexibility.

The introduction of information on flexibility does not influence the shift of business types, but contributes towards transforming the traditional accounting model so that it can accommodate the specific needs of service and information based organisations. This transformation may entail the expansion of the existing model to record more non-financial and qualitative information, or fundamentally changes to the existing accounting model.

8.2.5 A shift in cost profiles

The *fifth* challenge facing Accounting results from the significant shifts *in cost profiles* of businesses. This includes reductions in inventories, work in progress, and labour costs; increases in overheads; and a shift from direct to indirect costs. However, not only costs structures have changed – the concept of cost has changed too. Cost is now viewed as an instrument to enhance value added and this represents the efficient sacrifice of resources in order to create value in the organisation. Any inefficient incurrance of costs is therefore wasteful and causes a destruction of value. Other views suggest that cost is linked to activity rather than products and services and that those activities, which drive cost in the organisation, should be identified when it is traced and monitored.

The introduction of information on flexibility into Accounting does not solve the challenge directly, as it requires a change in the approach used to identify, gather, allocate and report on costs. However, the introduction of certain categories of flexibility, such as production and informational flexibility, may assist in identifying areas of waste and areas where no value is added for the customer and the investor. Measures of flexibility may also enhance new cost allocation models, such as target costing and activity based costing, and performance measurement models such as the balanced scorecard approach, if it is included as a variable in these models.

An important aspect that is emphasised in the development of flexibility indicators is that cost is only one of four strategic aspects in which competitive advantage may be gained. Three others that have been identified are time, quality and range, and even more may exist. These aspects place the collection of costs in context, from a strategic perspective.

8.2.6 A strategic decision making focus

The *sixth* challenge confronting Accounting and accountants is in the area of *strategic decision making*. Here information on flexibility can make a substantial contribution, as the type of decisions made by management are increasingly becoming strategic rather than operational or administrative (Ansoff, 1988). The challenge facing accountants and accounting researchers is to develop information systems that support the organisation's strategic decision-making process and that report to both internal and external users on these strategies and the achievement thereof.

Decision making, including strategic decision making, forms an integral part of the communication process of accounting information. The communication process is not complete once information has been reported but extends to the decoding and interpretation of information, which impacts on the decision process of stakeholders. Accountants should therefore participate more actively in the decision making of users. In order to support strategic decision making, the accounting system should become an open system that focuses increasingly on the environment of the company and on the future.

Information on flexibility is by its very nature forward looking and outward looking. In essence, flexibility is about dealing with uncertainty so that competitors can be outperformed. This requires the constant monitoring of competitors and the business environment in order to identify or anticipate change, threats and opportunities. The inclusion of flexibility measures in the accounting information system assists in focusing attention on the informational requirements for strategic decision making. It provides management with information needed to strategically position the company in relation to competitors and to balance the company between stability and chaos. It

also provides other stakeholders with information which enables them to assess the quality of management. Information on flexibility can also have a direct impact on the strategy of organisations. Flexibility levels and mixes of an organisation can be recognised as variables whenever strategic options are being considered. Strategic options which result in substantial declines in levels or changes in mixes of future flexibility may be viewed as less attractive options by management in unstable times.

8.2.7 Survival as a key objective

An important result of a turbulent business environment is that the *survival* of businesses is increasingly being threatened. Indicators of the survival ability of enterprises are still rudimentary when compared to the indicators used to assess profitability, and more recently, the creation of shareholders' value. The *seventh* challenge confronting accountants, the auditing profession and other users of accounting information is to identify and measure those aspects that are necessary to the survival of organisations in the information age. One such aspect is flexibility.

In the literature flexibility is regarded as an essential element of organisational survival. Flexible companies have a greater ability to survive volatile times than inflexible ones as the management of the former creates a range of strategic options to deal with unforeseen change. Information on flexibility is important to management and employees because it provides a means of responding to the unstable environment and is also a vehicle by means of which competitors can be outperformed. To other stakeholders, information on flexibility provides useful indications of the ability of the organisation to survive and succeed.

The challenge facing accountants and researchers is to identify, develop, measure and manage those aspects, such as information on flexibility, that are crucial to the survival of organisations. Flexibility and other indicators must be developed to become reliable measures of the survival potential of companies. Such indicators could also be used as benchmarks to signal direction and to monitor progress. Ittner and Kogut (1995) suggest that such indicators can be used as "incentives" in performance evaluation or as "signals" to highlight the desired strategic direction for the firm.

8.2.8 Non-financial indicators

The *eight* challenge facing accountants is to extend measurement beyond financial indicators into the development of the field of *non-financial indicators*. The demand for non-financial information on businesses is increasing as users are finding that they also need to receive information on a variety of non-financial indicators, such as operating data. The emphasis in Accounting should therefore, shift from the provision of mainly financial performance indicators to the inclusion of operational performance indicators as well as other qualitative indicators. Ittner and Kogut (1995) recommend the use of multiple criteria combined with a change in the relative weights attached to financial and non-financial measures, but do not support the complete elimination of financial objectives. The extension of accounting information from mainly financial measures to incorporate non-financial measures will have such a profound impact on the information system that some researchers view it as a paradigm shift (see Castelano *et al.* 1995). Eccles (1991, p.131) suggests that the move from financial to non-financial measures in fact amounts to a revolution:

“At the heart of this revolution lies a radical decision: to shift from treating financial figures as the foundation for performance measurement, to treating them as one among a broader set of measures.”

Eccles suggests further that items such as customer satisfaction, quality, market share and human resources be added to the formal measurement system. Turney and Anderson (1989) argue that the focus on information for continuous improvement encourages Accounting to redesign its systems and to develop new financial and non-financial measures of performance. Non-financial indicators are also useful in cost benefit analysis. While costs can usually be determined in financial terms, benefits are generally measured in non-financial terms. CIMA (1997) contends that this type of analysis should be used especially in the public sector where benefits are often intangible, and that it may provide useful information in the private sector as well.

The introduction of information on flexibility assists in expanding the field of non-financial performance indicators, as most flexibility measures fall into this category. The measures may range from quantitative measures such as number of parts used, response times and number of new markets entered, to qualitative measures such as a description of corporate culture, diagrams of organisational structure or a summary of the geographical locations of the corporation. The measures of flexibility, be it financial or non-financial, used by organisations are determined by their core competencies. Flexibility information and indicators broaden the spectrum of accounting information by concentrating not only on information on what is, but also on what can be.

8.2.9 Selection of data

The *ninth* challenge is the *selection* of data as input into the accounting information system. Accountants recognise those transactions and events, which meet the definition of elements and the recognition criteria identified in the conceptual framework on reporting. As a result, data that may be potentially useful is discarded because it does not meet the narrow recognition and measurement criteria. The challenge confronting accountants, educators and researchers is to reassess these selection criteria in Accounting. With the advances in technology an opportunity arises to expand the data processed in the accounting information system. Furthermore, the selection of data should really be determined by the output requirements of users of information, rather than by narrow and dated selection criteria.

Several measures of flexibility do not meet the narrow selection criteria and will not be incorporated in the conventional financial statements. The extension of the selection criteria of Accounting will result in more information on flexibility being incorporated into the accounting information system and specifically, into financial statements. The selection criteria of data should also be influenced increasingly by the need for information which has predictive value or is indicative of the future. This type of information is required in forecasting models and for sensitivity or scenario analysis. The inclusion of information on flexibility enhances the future-oriented content of accounting information.

8.2.10 Information processing

The manner in which information is *processed* results in the *tenth* challenge confronting accountants, practitioners, educators and researchers, namely to re-evaluate the accounting concepts, qualitative characteristics and practices such as materiality, comparability, income smoothing, aggregation, matching, prudence and consistency. The careless application of these concepts destroy useful and potentially direction-giving information while the end product, accounting information, still creates an illusion of objectivity, accuracy and usefulness. Accountants and educators should become more interested in the manner in which data are processed. If accounting information is to reflect economic reality faithfully, it should report on volatility and uncertainty. Accountants should not lose volatile results by smoothing, or uncertainty by using estimates which are aggregated with actual amounts.

Flexibility is a function of uncertainty and volatility. Information on flexibility provides an indication of a firm's ability to deal with volatility and uncertainty. There is therefore a conflict between an accounting system which smoothes volatility and information on flexibility which derives much of its value from precisely such volatility and uncertainty. Incorporating information on flexibility into the accounting information system should contribute towards an increased awareness that volatility and uncertainty is inherent in the business environment and that this should be reflected in the information system.

8.2.11 Dissemination of information

The *eleventh* challenge addresses the *dissemination* of accounting information, that is, the flow of information in and outside the organisation. The challenge confronting accountants is to communicate the information required by users timeously, but subject to the proviso that it should pertain to the identification and production of information relevant to users' requirements. It may require the decentralisation of the accounting function in organisations so that the accountant becomes a team player with direct and continuous contact with the users of accounting information. Furthermore, information must be disseminated timeously to users by using amongst

others, information technology. In other words accountants must become multiskilled and in addition to professional skills also become versed in business, problem solving, creative and communication skills.

Terblanché (1998, p.206) believes a change in perspective is required, for accountants should be seen as supporting the discipline instead of the discipline supporting accountants. This implies that more attention should be paid to the development of accountants' skills. The inclusion of information on flexibility in the accounting information system will be enhanced if accountants become multiskilled and able to deal with multidimensional constructs. An awareness of the benefits if organisations and also accounting information systems are more flexible, will also contribute to a more effective dissemination of information.

8.2.12 Behavioural impact

Unfortunately Accounting research has until fairly recently largely ignored the *behavioural impact* that accounting information have on people both inside and outside the organisation. Therefore the creation of an awareness of the behavioural impact and the incorporation of research results into the system constitute the *twelfth* challenge. Several of the concepts and principles underlying the Accounting discipline have an impact on behaviour but were adopted without due consideration of their implications. The accounting information should encourage actions which are consistent with the strategic objectives of the organisation. According to Ansari *et al.* (1997, p.11) accounting information has the following impact on the behaviour of people:

- Items that are measured become visible and are assigned greater decision weight because of perceptions that measured items are important and precise;
- Measured items motivate behaviour and signal the required direction of behaviour;

- Measured items can change attitudes and aspiration levels of people – once benchmark indicators are achieved, aspiration levels may be revised upwards; and
- Measurement can change the tendency of people to attribute success to their actions and decisions and failure to environmental factors beyond their control.

The challenge facing accounting researchers is to revisit its assumptions, concepts and characteristics to assess their impact on human behaviour. The inclusion of information on flexibility does not contribute directly to addressing this challenge. However, it does affect human behaviour in organisations. The behavioural impact of measures of flexibility is therefore an area that should be researched.

8.2.13 Short-term perspective

The *thirteenth* challenge originates from a criticism levelled at Accounting that it reinforces a *short-term perspective* of performance among stakeholders of organisations. Short-term results are often pursued at the cost of the long-term well-being of organisations. The challenge confronting educators and accountants is to encourage and cultivate a longer term view of performance. The accounting information system should also support such a view by providing information that makes the long-term impact of management decisions visible (Ansari, *et al.*, 1997). This implies that the information system should focus on factors which create long-term value such as productivity, capital maintenance, training, advertising, innovation and research and development.

Peters (1991, p.583) suggests that quality, service and *flexibility* are further sources of long-term revenue enhancement. Business and cash flow cycles may also be used to develop a longer term perspective of performance by studying the direction, pace and trends of these cycles.

The introduction of information on flexibility fosters a longer term view of performance. The level of flexibility of organisations gives an indication of their ability to adapt to unexpected changes in the environment, because the maintenance of a

reasonable level of flexibility indicates that the organisation should be able to survive in the medium to long term. Flexibility information is especially valued when the business environment is volatile and uncertain in that it provides the management of organisations with a vehicle to deal with uncertainty. In certain instances the creation of sufficient flexibility may result in short-term decreases in profits and shareholders' wealth in exchange for an improved ability to survive and succeed in the longer term. Because information on flexibility is future oriented and is assessed over time, it supports a long-term view of performance, opposed to a short-term view which relies mainly on historical performance.

8.2.14 Accounting as a control mechanism

The *fourteenth* challenge confronting accountants and managers is to abandon the inappropriate use of Accounting as a *control mechanism* and to develop its role as a supplier of decisions and a scorekeeper of performance (Castelano *et al.*, 1995). The traditional accounting system is internally focused and very often concentrates on apportioning responsibility and blame, rather than having an external focus and acting as a learning process to improve the quality of future decisions (Ward, 1992). The inappropriate use of accounting information results in financial targets, budgets, forecasts, etc., becoming the focus of management and employees to the detriment of areas such as customer relations, innovation, design and flexibility. This well-entrenched use of financial information also causes a decline in accountants' awareness of change and their willingness to experiment. A myopia is created by controlling the organisation through financial numbers.

Auditing has also contributed to the control orientation in Accounting. Accounting is used as a vehicle to maintain internal control in organisations which further entrenches its role as a control mechanism. Auditing should not stifle innovation in Accounting or dictate its function but should rather follow and adapt to accounting change instead of seeking to direct it.

The inclusion of information on flexibility may not assist in addressing this challenge directly, as the role of Accounting as a control mechanism is determined to a large extent by factors such as tradition, management style, the use of specialised

management routines, the selection of incentive allowances, attitudes of management and staff, and the education and training of managers and accountants. It may, however, contribute towards the movement away from using accounting information as a control mechanism. It is seldom possible to measure flexibility in financial terms and even then the measurement may not be very accurate, given the nature of the construct. This should increase the awareness among management and accountants that organisations are too multifaceted for decisions to be based on only a limited number of financial indicators.

8.2.15 The role of standardisation

Standardisation, the *fifteenth* challenge, is identified in the literature as another threat to the utility of accounting information. It is especially the manner in which these standards are used that should be reconsidered (Lee, 1987). These statements create a compliance complex in accountants, which results in an unwillingness to experiment, innovate or use professional judgement. Standardisation makes Accounting inflexible and unresponsive to the changes in its environment. The challenge confronting accounting educators, standard setters and accountants is to develop an information system which replaces a compliance mind set with a communication mind set. Compliance and comparability should not be attained at the cost of fair presentation, relevance, flexibility and usefulness.

The introduction of information on flexibility does not influence the perceptions surrounding the role and use of standards directly. However, it does once again create an awareness among accountants and users of the important role of flexibility in the organisation and in the accounting information system and may ultimately result in a changed attitude towards the rigid application of accounting statements, which is at present inhibiting effective communication. Standards will continue to be used to regulate external reporting and to make financial statements more comparable. But standards should also be used to identify the basic principles, which should be adhered to, instead of specifying detailed rules and thereby stifling innovation and growth. It is important to consider that user expectations for information are directed at accountants, not at the Accounting discipline or accounting standards (Terblanché, 1998). The primary aim of the accountant should

be to meet these needs of users, even if it requires innovation or the exercise of professional judgement.

8.2.16 Underlying assumptions of traditional Accounting

The *sixteenth* challenge that confronts accountants is to re-examine their view of *reality, underlying assumptions* and *scientific approach* adopted in Accounting. New perspectives on reality and scientific endeavour cast doubt on some of the fundamental assumptions underlying the natural sciences and social sciences. Scientists have for example been obliged to abandon a Newtonian view of reality which sees nature as a huge and predictable machine to which a set of rules apply. Instead modern science is recognising that nature is not always predictable, that man is an integral part of nature and that man creates his own reality by observing certain aspects and ignoring others.

In Accounting these perspectives imply amongst others that information cannot be recognised or measured without changing it, that objectivity is not possible, that information provided by accountants is biased and that accountants and organisations create their own reality by identifying and selecting certain data and rejecting others. These views require a re-examination of the Accounting discipline and its information system, which is likely to result in radical and profound changes to both. Such changes should result in a discipline which at present has a micro anchor which focuses on the enterprise becoming a discipline with a macro anchor which focuses on the enterprise in the context of a larger environment.

The inclusion of information on flexibility does not directly contribute towards addressing this challenge. However, the re-examination of Accounting and its information system may result in a model which is more suited to communicating information on uncertainty, volatility and flexibility. Such a fundamental change of the accounting discipline should be an evolutionary and continuous process of improvement, rather than a radical abandonment of existing underlying assumptions.

8.3 Interim conclusion University of Pretoria.etd

It is apparent from the above discussion that many of the problems confronting the Accounting discipline, accounting information system and accountants in adapting to the changed business environment have far-reaching implications. The current accounting model is an inflexible closed system and therefore unable to respond adequately to the rapid changes in the business environment. Accountants are educated to use this inflexible model and have consequently become inflexible themselves. Some of the challenges raised in chapter 5 require not only cosmetic changes but a re-examination of the basic underlying assumptions, concepts and characteristics of the accounting discipline together with a change in the attitude and education of accountants.

The process of transformation required in Accounting is addressed in the form of 16 challenges for renewal and change in Accounting. The process should be one of continuous improvement rather than a radical abandonment of existing values. In addressing these challenges, measures and indicators can become important tools for identifying the current position, signalling the future direction and measuring the attainment of determined goals. Another area which should be managed in the process of change is the attitude and perceptions of accountants, management and other users of financial information. It is envisaged that the change process in Accounting would be supported by a new perspective on the education process of both preparers and users of accounting information.

On the surface the introduction of a construct such as flexibility into an inflexible, rigid and financially oriented discipline such as the current accounting system perhaps seems paradoxical. It should be obvious that a discipline which is flexible and able to adapt to changing demands in its environment, is much more suited to communicating information on flexibility. Yet the infrastructure of the current accounting information system is already in place and it is the most cost effective vehicle for the communication of information on flexibility to a variety of users. Furthermore, accountants are trained to recognise, measure and report business information. If the accounting profession does not, however, broaden the base of

business information that they supply, the gap created in the market may be filled by competitors who may be more willing to provide the necessary information.

The introduction of information on flexibility into the accounting information system addresses a number of the challenges, specifically in the areas of globalisation, non-financial indicators, a customer orientation, the short-term perspective of performance, a strategic focus and as an indicator of survival. It can provide users with information that is useful in decision making even within the constraints of the existing accounting model. The users of business information should however be educated about the benefits of flexibility and the influence that information on flexibility may have on their decisions. Accountants should also become more aware of the need to align the accounting information system with the needs of stakeholders. They have the ability and opportunity to become the drivers of change and the custodians of flexibility in a competitive business environment.

The interim conclusion is therefore that the introduction of information on flexibility into the current accounting system can enhance the system by providing useful information and by addressing some of the challenges confronting the discipline and the profession. The introduction of information on flexibility into the current accounting system is however a compromise, as the full potential of such information may not be unlocked within its current inflexible structure. The inclusion of information in the accounting information system is dependent, to a large extent, on the willingness of accountants to recognise the usefulness of such information and on the ability of stakeholders to use it in decision making.

It is recommended, therefore, that information on flexibility be included the current accounting information as an interim measure. The inclusion can be facilitated through the use of technology. Information data bases may be extended to included more non-financial information on especially flexibility levels and mixes. Access to the information may be enhanced through the use of direct electronic access. In financial reports information on flexibility may be included in the notes to the financial statements or in other reports such as the director's report, social report, operating report or chairman's report.

In the longer term it is recommended that the discipline and information system be restructured by the accounting profession and accounting researchers in order to create a flexible, open information system which is better equipped to respond to the changing demands of the stakeholders for information on intangibles, employees, knowledge, information, flexibility, globalisation, markets and so forth. The accounting information system will then be a facilitator, and not a follower of change.

Chapter 9 Conclusions University of Pretoria.etd

“Firms have long been described as designing mechanisms by which to buffer uncertainty in order to minimise risk. Yet the development of flexibility capabilities implies a contradiction of this learning. The value of flexibility lies in increasing an organisation’s ability to respond to changing and uncertain environment. Designing an organisation that does not shield itself from this uncertainty requires fundamental organisational changes.”

(Ittner & Kogut, 1995)

Accounting information systems that support these organisations, also require fundamental change.

9.1 Introduction

In prior research the problems with measuring nebulous or elusive constructs, such as flexibility have been identified (Parthasathy & Sethi, 1993; Upton, 1994). Recent research has however indicated that flexibility is an essential characteristic of a successful company in a highly competitive and rapidly changing business environment (Kanter, 1982; Peters, 1991; Johnson, 1992; Volberda, 1998). This suggests that management and accountants should not only understand the construct, but also know how to create and measure flexibility in their organisations. The problem is that the area of flexibility is neither well understood nor well researched. Attempts by management to increase flexibility are usually based on an *ad hoc* rather than an organised and structured approach, with the approaches used in the creation of flexibility often being limited to a few well-tried methods. The construct is also poorly understood in that its multidimensional aspects are not always recognised and conflicting definitions of flexibility abound. Consequently, the management of organisations have tended to limited the creation of flexibility to well-known areas such as manufacturing and financing.

Aaker and Mascarenhas (1984) suggest that the above situation is the result of a lack of frameworks and procedures in the literature to guide management in creating flexible organisations. They note further that once flexibility options have been created, management’s judgement about these options is often subjective and informal. Even less research is available on how flexibility should be valued and

measured. Flexibility is admittedly a difficult construct to measure, especially within the constraints of the current accounting model, but this does not imply that such an important variable can be ignored in accounting research purely for this reason. It was shown in this research study that flexibility is amenable to measurement, although some categories, such as human flexibility, may be more difficult to measure than others, such as production flexibility. The limited research that is available on the measurement of flexibility, has tended to focus on those individual areas which allow measurement with greater ease, such as manufacturing, marketing and geographical flexibility. In this research the measurement and communication of all the different kinds of flexibility in organisations were addressed. Guidelines were provided to management and accountants for the development of flexibility measures, together with examples of measures that may be used in practice. Finally, procedures that can be used by management and accountants for the development of measures and monitoring different types of flexibility were proposed.

The construct of flexibility poses a threat to the *status quo* in the accounting discipline and accounting profession. Its development in business enterprises demands a new type of thinking and organisation structure (Iltner & Kogut, 1995). Similarly, the introduction of information on flexibility into the accounting information system requires a new type of thinking and organisation structure. This new mind set and structure will result in fundamental change to Accounting. Such change is necessary if the discipline is to respond successfully to the new demands of the changing business environment. Indeed, Peters (1991, p.562) suggests that each procedure in the enterprise – MIS, personnel, manufacturing, product development, distribution, accounting – should be zero based. This means that it should be reassessed in all respects, and in nine cases of ten essential aspects would have to be changed. Once such fundamental change has been effected and a “new” Accounting has evolved, the discipline will have the potential to develop into a facilitator and a driver of change (Turney & Anderson, 1989). However, this is only possible if the change to Accounting is brought about as a process of continuous improvement.

This research on flexibility should be useful to management, employees and accountants in creating an awareness of the need to be flexible and of their ability to develop and measure flexibility capabilities in their organisations. It should also be of interest to investors and other external users of business information as it will result in better informed decisions. Researchers in Accounting and related disciplines may explore research opportunities in this relatively new field of research. Standard setters may use the research to expand disclosure requirements on flexibility in financial reporting and accounting and business educators may include the research on flexibility in their syllabi.

In this chapter an overview of the research is provided. The conclusions reached as a result of the research are discussed and the contributions made to Accounting and related disciplines are summarised. Finally, the areas requiring further research in both Accounting and related disciplines are identified, and a brief comment is made on the future of flexibility in organisations.

9.2 Overview

The problem addressed in this thesis is the apparent inability of Accounting, the accounting information system and accountants to adapt quickly and efficiently to the changing demands of users for business information. In recent years criticism has been levelled at the relevance and usefulness of accounting information (Hakanson, 1978; Allen, 1994; Turney & Anderson, 1989 and so forth). In addressing these problems, the proposition in this thesis is that the introduction and development of the construct “flexibility” in the business enterprise and the accounting information system will provide a possible solution to the stated problem area.

Three research opportunities were identified in this new research on flexibility:

- To develop a construct of flexibility that includes all attributes of flexibility within the organisation and to address the nature of these different types of flexibility;

- To explore the role and importance of flexibility in the organisation; and
- To introduce the construct of flexibility into Accounting and to develop procedures for the recognition, measurement and communication of information on the different types of flexibility in the accounting information system.

The first two research opportunities were addressed in chapter 6 where the construct was defined, the different categories of flexibility were identified and the role of each category in the organisation discussed. In chapter 7 the third research opportunity were addressed by means of suggestions for introducing flexibility into Accounting. Accounting information and procedures were suggested to management and accountants for the recognition, measurement and communication of flexibility measures.

In the research two main assumptions and four secondary assumptions were made about the nature of flexibility. The main assumptions were that –

- flexibility is a function of uncertainty and that the value of being flexible increases as uncertainty increases; and therefore
- flexible organisations are more likely to survive in a turbulent and competitive business environment than inflexible organisations.

The four secondary assumptions relate directly to the nature of flexibility:

- It is a discriminate construct which enables a distinction to be made between “good” and “poor” performers;
- It is an observable construct which influences behaviour in the organisation;
- It is a measurable construct which can be measured and monitored over time; and
- It is an operational construct which can be used by management to improve the competitive position of organisations.

Following from these secondary assumptions was the proposition that information on flexibility

- is useful in decision making and
- should be communicated to all stakeholders.

Although these assumptions were necessary as flexibility is a relatively new research area where only limited empirical evidence is available to support any of assertions, a number of authors have expressed support for them. For example, flexibility has been observed in enterprises by Donaldson (1971), Ansoff (1965) and Pasmore (1994). Attempts to measure flexibility have been made by Gerwin (1993) and Muralidhar (1992) and flexibility has been identified as the most cost efficient method for coping with uncertainty by Aaker and Mascarenhas (1984).

Flexibility is a fuzzy, multidimensional concept for which a number of different definitions have been proposed in the literature. In this research the existence of a phenomenon “flexibility“ in organisations is recognised. This phenomenon was refined into a construct by defining the concept, delineating the field of study and categorising the different types of flexibility. For the purposes of this research flexibility is defined as:

“The process of being aware, responsive, willing and able to take action to reposition the resources and functions of the organisation in a manner consistent to the evolving vision, strategies and goals of management as they respond proactively or reactively to new information on foreseen and unforeseen change in the organisation and its environment.”

Flexibility and information on flexibility offer the following benefits:

- it provides an enterprise with a means of gaining *competitive advantage* in relation to competitors;
- It provides an indication of the ability of the enterprise to *survive* and *adapt* to the changing business environment;
- It provides a means of assessing the *quality of management* and *employees*;

- It provides information on the attainment of *strategic goals*;
- It provides management with a means of *adding value* to the business;
- It acts as the driver to greater *innovation, creativity* and *learning* in enterprises; and
- It is a variable that may be used to refine existing *techniques* and *methods* used in the organisation in areas such as capital budgeting, investment analysis, business finance and the development of core competencies.

It is necessary for management and accountants to be able to recognise, create, measure and monitor the progress in the development and maintenance of flexibility in business enterprises. It is therefore necessary to recognise, measure and report on levels and mixes of flexibility. This requires the development of information on each category and level of flexibility which can then be communicated to users by means of the accounting information system. This research indicates that flexibility can be measured and communicated by means of the existing accounting information system. The current accounting information system provides the most cost effective means of communicating such information as its infrastructure is already in place. The use of the existing accounting information system is however a compromise. It is noted in chapter 8 that as the system is not designed to deal with a construct such as flexibility which is future oriented, linked to uncertainty, is measured both quantitatively and qualitatively and is focused outwardly to the environment. Nonetheless, as an interim measure, the current accounting model can be extended to accommodate the communication of information on flexibility at least to some extent. The introduction of information on flexibility enhances the decision usefulness of the information produced by the current accounting information system. It may also address some of the criticisms levelled at the existing accounting information system, as identified in chapter 5. Many of the criticisms of Accounting will, however, only be resolved when its fundamentals have been reassessed, and the system has been adapted to meet the changing demands of society (Puxty, 1993).

In addressing the stated problem area, of this thesis, namely the apparent inability of Accounting to adapt quickly and efficiently to the changing demands of the business environment, General Systems Theory was used as a research method. An

interdisciplinary literature survey was completed to identify the nature of change in the environment (chapter 3) and to consider the impact of such change on the business organisation (chapter 4) and the accounting information system (chapter 5). The literature survey resulted in the identification of a number of challenges confronting the Accounting discipline, information system and accounting profession on entering the 21st century.

The research was carried out in accordance with the Mitroff research model described in chapter 1. Chapters 2 to 5, form the activity of “conceptualisation” used to develop the conceptual model. From the conceptual model, a scientific model was developed through a process of “modelling” (see figure 1.2). The construct flexibility was defined, demarcated and classified in chapter 6 to form the basis of the scientific model. The proposed classification framework of flexibility was designed as a basis for developing flexibility measures in organisations. The classification matrix (figure 6.7) consists of the following areas in which flexibility can be created (also called *types* of flexibility):

- Production flexibility,
- Marketing flexibility,
- Financial flexibility,
- Informational flexibility,
- Geographical flexibility, and
- Human, cultural and organisational flexibility.

The second dimension of the matrix is the four strategic *aspects* or dimensions where flexibility can be created, namely

- quality,
- cost,
- time, and
- range.

For each of the categories delineated in the matrix, indicators should be created for the following three *levels* of flexibility:

- Actual flexibility,
- Potential flexibility, and
- Required flexibility.

Each of the categories was defined and the role of each in the organisation addressed and illustrated with examples. These categories are neither exhaustive nor mutually exclusive, but rather interrelated so that categories support or compete with one another. The initial and perhaps most important contribution of the framework is to create an awareness among management and accountants of the types of flexibility that may exist in an organisation.

The construct of flexibility was operationalised with regard to Accounting and the accounting information system in chapter 7. In terms of the Mitroff model the solution, being the operationalisation of flexibility, was derived through an activity of “model solving” from the scientific model developed in chapter 6. The classification matrix, which was developed for the construct of flexibility, was used as a basis for developing accounting information on flexibility. Procedures were developed to serve as guidelines to management and accountants for the recognition, measurement and communication of flexibility measures.

These normative suggestions of information on flexibility were evaluated in chapter 8 in terms of the criteria for change required in Accounting and its subsystem. This represents the action of “feedback in the narrow sense” proposed by the Mitroff model. As a result of the feedback action, the conclusion was reached that the accounting information system provided a viable and cost effective, if limiting, vehicle for the communication of information on flexibility in the shorter term. In the longer term more fundamental changes may be required to the accounting system, which may result in an information system which is better suited to communicating information on qualitative, fuzzy and complex constructs such as flexibility.

9.3 Conclusions

Based on the research, the following conclusions regarding Accounting and flexibility have been reached:

- Accounting has not kept abreast of the changes that has taken place in its environment. It will have to adapt rapidly to the changing demands of its environment or risk losing its position in society as the language of business.
- Because Accounting has been slow in responding to change, it has been criticised in the literature for failing to reflect reality, for providing misleading information, for not providing information that is relevant, timeous and useful for decision making, and for being inflexible and unable to adapt to a changing business environment.
- The introduction of the construct “flexibility” in Accounting and the development of information on flexibility provides a feasible solution for the short term to address several of the shortcomings of the present accounting system.
- Accounting should accommodate more non-financial, qualitative and complex constructs such flexibility, if the discipline and information system are to retain their usefulness.
- Several of the shortcomings of Accounting can only be resolved if the fundamentals of Accounting are reassessed and a more flexible, technologically based and future-oriented information system is developed. Information on flexibility may be communicated more effectively in the longer term via such an improved accounting information system.
- The momentum for change in Accounting, be it the introduction of information on flexibility or more fundamental changes should come from accountants, academics and standard setters. This requires the development of new skills – intellectual, communication, interpersonal and professional skills (Chandra & Hock, 1992). It requires a change of attitude to volatility, uncertainty and change through the continuous learning of existing accountants and a restructuring of the education and training of new accountants. The

accountant should be flexible if his/her potential role as architect and facilitator of information on change is to become a reality.

As a result of the interdisciplinary literature survey and systems approach adopted in the research, a number of other conclusions regarding change, flexibility and management emerged as the research progressed:

- The business environment is changing rapidly because of political, economic, social and technological developments. The nature of the change has progressed from incremental change to discontinuous change (Nadler & Tushman, 1995) and from predictable to unpredictable change. Past events and patterns are less likely to be repeated in exactly the same form in an increasingly uncertain and competitive business environment.
- The specialised plans and routines of management which were suited to a stable and predictable environment will increasingly be replaced by dynamic capabilities more suited to an uncertain and unpredictable environment (Volberda, 1998).
- In response to a changing environment, business managers are changing the structure, culture and strategy of their enterprises. The focus has moved from merely improving enterprises through re-engineering, restructuring and reorganisation to altering the fundamentals of organisations. These fundamental changes in organisations should be followed by fundamental changes to the accounting system.
- As a result of the rising uncertainty and complexity in the business environment, the survival of enterprises are increasingly being threatened (Senge, 1990; Peters, 1991). It follows that enterprises that are flexible and thus able to adapt rapidly and efficiently to change, are more likely to survive and succeed than their less flexible counterparts. This implies that the value of flexibility for enterprises increases as the levels of uncertainty in the environment increase.
- Flexibility is an observable phenomenon in business organisations (Donaldson, 1971; Pasmore, 1994). Management may, however, not always be consciously aware of its existence, although it may affect their business

decisions and is often rationalised by means of clichés such as “building in fat”, “putting aside something for a rainy day” or “don’t overextend the business”.

- Flexibility is an operational construct that can be introduced and developed in business organisations to improve their position in relation to that of their competitors. Indicators of flexibility can be developed to support this process.
- The phenomenon of flexibility encompasses different types, levels and strategic aspects, which may complement or conflict with one another. In order to understand the different attributes of flexibility it is necessary to understand the levels and mixes of flexibility.
- Flexibility can be measured using both financial and non-financial measures. Measurement is necessary so that the construct can become visible, the different levels of flexibility can be identified and the progress towards achieving predetermined levels of flexibility can be monitored. The type of flexibility measures that are selected depends on the strategy, core competencies and critical performance areas of each enterprise. Certain types of flexibility are difficult to measure as they are largely value based and of a qualitative of nature.
- Developing standardised or prescriptive measures of flexibility is not only an inflexible and therefore inappropriate approach, but counterproductive. Rather, an evolutionary approach is proposed in the research, which affords each firm the opportunity to develop its own customised flexibility indicators.
- Information on flexibility may be useful to a wide range of decision makers for assessing the ability of an enterprise to survive and remain competitive in an unstable environment. It may also provide a means of assessing the performance of management. It furthermore improves the quality of reported information.

9.4 Contributions to research University of Pretoria.etd

The study has made several mainline contributions to Accounting and some ancillary contributions to related disciplines.

The contributions to Accounting are the following:

- It identifies, through an interdisciplinary literature survey, the major challenges confronting the Accounting discipline and accountants in adapting to a highly competitive and rapidly changing business environment. These challenges may be used as
 - criteria for assessing the contribution of research, improvements or innovation in Accounting;
 - a means of focusing attention on those areas of Accounting requiring change; and
 - a point of departure for studying the interrelationship between Accounting and its environment from an open system perspective.
- It suggests that problems confronting Accounting should be solved by viewing it as an open system which interacts freely with its environment. The demands of the environment should drive the nature of change required in Accounting.
- It develops the phenomenon of flexibility in organisations into a construct which is introduced into Accounting. Flexibility is defined, the study field is demarcated and a matrix of the different categories, levels and strategic dimensions is proposed.
- It operationalises this construct in Accounting by suggesting, through the use of examples, types of information on flexibility that may be communicated via the existing accounting information system.
- It proposes procedures that management and accountants may use to develop flexibility measures for their organisations.
- It contributes towards creating an awareness among accountants of the importance of flexibility to an organisation and the need to create, sustain and measure the flexibility of organisations on a continuous basis.
- It assesses the impact that information on flexibility may have in addressing the challenges confronting Accounting and accountants.

- It suggests new areas of [Research in Accounting](#).
- It emphasises the need for interdisciplinary research in Accounting so that the problem areas identified in Accounting may be viewed from a holistic perspective. Such research opens up new opportunities for research in Accounting and enhances the status of the discipline.

The ancillary contributions to Business Management, Financial Management, Management Science, Organisational Theory and other related disciplines are as follows:

- It takes an observed phenomenon, “flexibility”, in business organisations and makes it visible by refining the phenomenon into a construct, defining the term and identifying the role and of flexibility in the enterprise.
- It refines the nature of flexibility through the development of a framework for categories, levels and strategic aspects of flexibility. These are used to clarify the role and importance of flexibility in the organisation and to develop flexibility measures.
- It creates a greater awareness of the value of flexibility in business organisations among management, employees and other stakeholders of businesses.
- It provides management with guidance on the different attributes of flexibility which may be used to competitively position and reposition the firm.
- It provides a means of integrating financial management in the organisation.
- It summarises the available literature on flexibility in organisations.
- It describes the different types of change and emphasises that flexibility in organisations should be aligned to the nature and pace of change in its environment.
- It focuses on the importance of using the core competencies of the enterprise to identify the areas where flexibility should be created and measured.

In this thesis three ancillary contributions are made to Research Methodology:

- The successful application of the Mitroff model in chapter 1 constitutes empirical evidence of the model's validity. The model was found to be a valuable research tool and in Accounting:
 - Its circles and activities are helpful in delineating the scope of research;
 - The circles also help researchers to segment a research report into chapters and the activities suggest an appropriate chapter sequence;
 - It prompts the appropriate thought processes at different points of a research project, such as lateral thinking during conceptualisation and logical reasoning during modelling;
 - It encourages a holistic approach to the scientific endeavour; and
 - It supports a process-related approach as the model has no specific starting point or end and it makes provision for continuous feedback.

- The use of System Theory in the development of the conceptual model provides structure to the research:
 - It made it possible to use an interdisciplinary approach to consider the impact of change in the business environment, the enterprise and the accounting information system;
 - It provides an effective means for explaining the complex relationships between the accounting information system and its suprasystems;
 - It provides a useful method for studying the impact of change on the organisation and the accounting information system from a holistic perspective; and
 - It emphasises the importance of continuous feedback to enable the system to reposition itself or influence its environment in response to change.

- The use of the Burrell and Morgan matrix provides an effective means of structuring the assumptions on which the research is based:
 - It identifies the philosophical assumptions which underlie the research; and

- It suggests research methods that are appropriate to such underlying assumptions.

9.5 Further research

During the research a number of areas requiring further research were identified:

- Two activities of the Mitroff model have not been completed in this thesis:
 - Activity 4, “implementation”, was not attempted other than in the form of a tentative proposal for the structuring of the implementation process in the organisation; and
 - Activity 6, “validation” of the research, was not performed.

The construct of flexibility is fairly new to management and accountants. Although the phenomenon exists in organisations, it is not very visible and has not been described in the format used in this study. It was therefore deemed to be premature to perform a validation of the construct. Therefore research opportunities exist to validate and refine the model proposed in this research. Further opportunities exist for describing and evaluating the implementation of flexibility, its measures, indicators and information, in organisations.

Research would also be conducted fruitfully in the following areas of flexibility:

- The validation of the categories, levels and strategic aspects of flexibility through observation of the use of the construct in enterprises.
- The development of indicators of flexibility and testing of their usefulness in organisations.
- An observation of the influence of flexibility in decision making of management and other stakeholders in enterprises.
- A comparison of the flexibility levels in different companies and industries, possibly via the development of flexibility scales.

- The development of industry indicators of flexibility.
- The empirical testing of the relationship between certain flexibility indicators and stock market prices.
- The testing of the relationship between flexible and inflexible enterprises and their stock market prices.
- The relationship between MNEs and national companies and the impact of geographical flexibility on share prices.
- The use of information on flexibility by management and employees in strategic decisions, sensitivity analysis and in predicting future outcomes of the organisation.
- A historical overview of the progress of flexible companies compared to inflexible companies, to determine whether flexible companies
 - outperform inflexible companies;
 - are more likely to survive in a changing environment than inflexible ones.
- A study of the impact of flexibility on corporate failure and corporate recovery.
- A further refinement of the procedures proposed for developing, measuring and communicating flexibility measures.
- The identification of subcategories for each category of flexibility such as changeover, volume and rerouting flexibility in production flexibility.
- A refinement of the definition of flexibility.
- The development of more guidelines for the identification of potential flexibility.
- A study of the behavioural impact of flexibility and the development of defence routines.
- Research on the unit level in businesses where flexibility analysis should take place. Volberda (1998) suggests that analysis should take place at a strategic unit level. The results of individual SBUs could then be synthesised into the reporting unit, by means of appropriate methods.
- The investigation of existing models in which the incorporation of flexibility as a variable may enhance the model, including target costing, DCF and failure prediction models.
- An assessment of the possibility of using the balanced score card approach as a vehicle for the communication of non-financial information on flexibility.

- A survey to establish whether information on flexibility is used in decision making.
- Further refinements on the measurement and valuation of flexibility.

More research is also required in the following areas:

- A study on the relationship between uncertainty, flexibility and risk.
- The development of models/criteria in terms of which management and stakeholders can assess the level and nature of change in the environment more objectively.
- The refinement and expansion of the challenges confronting Accounting. This would also highlight areas in which further research is required and may be used as criteria for the assessment of new research, contributions and innovations in Accounting.
- An investigation into the underlying assumptions and concepts of Accounting in the light of its changing environment.
- The use of options theory as a means of attributing a value to the flexibility of enterprises. This may in turn influence aspects such as the valuation of business organisations for purposes of take-overs and mergers. As present the valuation of strategic options addresses only certain attributes of flexibility.
- Research on the communication function in Accounting and in particular on the communication of information on flexibility.

Further research is required on the impact of the construct of flexibility on the disciplines related to Accounting such as the following:

- Auditing: The impact of flexibility on going concern and audit risk assessments. An evaluation of whether information on flexibility, which is communicated to external users, should be audited and the impact that the audit of such a construct may have on audit risk.
- Financial management: The impact of flexibility on the assessment of company risk, the raising of finance and on financial control. A consideration of the relationship between budgeting, forecasting and flexibility.

- Taxation: The impact of flexibility on monetary and fiscal policies, and the comparative advantage of countries.
- Strategic Management: The impact of flexibility on strategic decision making in dynamic times and particularly on aspects such as contingency and catastrophe planning and the strategic routines in the firm. The role of flexibility as a tool of management to gain a measure of control over an unpredictable environment.
- Investment Analysis: The impact of flexibility on investment theory, the distribution of scarce resources and portfolio theory. The relationship between investment and financing policies and flexibility.
- Management Theory: The impact of flexibility on Management Theory and the manner in which enterprises are managed and structured. Flexibility requires that the strategic routines of management be increasingly replaced by dynamic capabilities. The management and monitoring of flexibility in firms.
- Organisation Theory: The impact that flexibility has on the structure and culture of organisations.
- Behavioural Science: The impact of flexibility on human behaviour. How flexibility can be created in people, and how defensive routines against change and flexibility should be addressed.
- Education: The impact of flexibility on the education of accountants and managers and the skills that are necessary to create and manage flexibility in organisations.

9.6 The future

The pace and level of unforeseen change in the future cannot be predicted. However, there is consensus in the literature that change and volatility is likely to continue in the foreseeable future. The more uncertain the business environment is, the more the need for and the higher the value placed on flexibility. It therefore seems likely that flexibility in organisations will remain an important issue in at least the shorter to medium term.

The success of the construct of flexibility to a large extent depends on the willingness of practitioners, accountants and managers to recognise its potential as well as their ability to create flexibility in their organisations. To make flexibility visible in these businesses it is necessary that flexibility measures and indicators be developed to identify current and potential flexibility levels and to determine required levels.

Volberda (1998) contends that flexibility is not simply another business fad, but that it represents a fundamentally different set of managing and organising principles and a different way of conducting corporate life. The construct of flexibility has far reaching implications for management, the organisation and its accounting information system, and for the Accounting discipline and profession.

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