

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 (Ittner & 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.