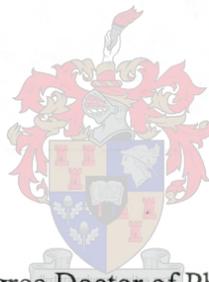


**KEY FACTOR INTRAPRENEURSHIP-
THE DEVELOPMENT OF A SYSTEMS MODEL TO FACILITATE THE
PERPETUATION OF ENTREPRENEURSHIP IN THE LARGER
SOUTH AFRICAN ORGANISATION**

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December 2002

DECLARATION

I, Christiaan Johannes Goosen, declare that the work contained in this dissertation is my own original work, and that it has not previously, in its entirety or in part, been submitted at any university for a degree.

Date: December 2002

ABSTRACT

This study focuses on corporate entrepreneurship or intrapreneurship. Current research on the subject focuses on traditional theory of intrapreneurship in which the creation, structure and focus of business ventures feature prominently. Central to an intrapreneurship inquiry however, are the people who make up the organisation and their interaction within the organisation through structures and processes. Many members in an organisation can initiate and be involved in entrepreneurial activities, but the lack of autonomy and access to resources can restrict them from doing so.

This study proposes a solution to these problems by focusing inwards into organisations and examining ways to foster intrapreneurship. It also emphasises the influence of executive leadership on organisational outcomes. In addition it proposes an answer to the question of how internal structures and processes can facilitate intrapreneurship and how management's relationship with staff can promote intrapreneurship. Through this the study adds to the current understanding of intrapreneurship. The study examines the relationship of a proposed intrapreneurship model to organisational performance, particularly financial performance. Lastly it examines intrapreneurship in context.

Once an organisation behaves intrapreneurially, positive results could follow, therefore the relationship between one of the possible results, that of improved financial performance and intrapreneurship is researched in this study. Financial data form the basis of the calculation of many measures of performance. Organisations, however, are generally not willing to supply researchers with hard financial data. A possible way to overcome this problem is to measure financial outcomes through the interpreted views of management, for example that sales

increased or decreased, rather than stating the absolute value. However, this is a subjective measure and the researcher decided to overcome this problem by concentrating the study on a sector of the Johannesburg Stock Exchange for which published financial data is available. The published financial data forms the basis for the calculation of an index that is used to discriminate between better and weaker financial performance of organisations.

The study identifies nine dimensions of the construct Intrapreneurship, which were factorised into three key factors. Two of the key factors focus externally and one internally. The final intrapreneurship model that emerges from the study represents the organisation's innovativeness, proactiveness, and management's influence on organisational structures, processes and internal relations.

This model represents product lines and changes, research and development leadership, new techniques employed in the organisation, the organisation's competitive posture and its risk-taking propensity, its environmental boldness and the decision-making style of management in terms of external opportunities. The model also addresses internal structures and processes, as well as relations in terms of intrapreneurial goal setting – a system that promotes, facilitates and manages creativity and innovation. It addresses an *intracapital* system for supplying resources and it facilitates communication. The model allows for staff input to management, a degree of intrapreneurial freedom, a problem-solving culture and empowered staff. Finally, it provides for the championing of intrapreneurship by management.

In the study, hypotheses are set to establish if a relationship exists between intrapreneurship and financial performance and to examine intrapreneurship in context. The influence of

organisational age, organisational size and the organisation's share Beta on intrapreneurship, is examined. The conclusions of the study can be summarised as follows:

There is a relationship between financial performance and intrapreneurship as represented by the key factor management. The key factor management is a significant predictor of financial success. Organisations with higher levels of intrapreneurship are therefore more likely to be financially successful than those organisations with lower levels of intrapreneurship. The key factors that represent the proposed model each correlates moderately with the financial index. The key factor added by this study to the traditional model of intrapreneurship, improve the correlation and enrich the model.

The study confirms the view that organisations can be intrapreneurial, regardless of size, which is measured by both employee count and annual turnover. This finding dispenses with the popular view that only small organisations can be entrepreneurial. The study furthermore confirms the view that older organisations could be less intrapreneurial. The study finds that younger organisations tend to be more proactive in their approach in the areas of new techniques, competitive posture, risk-taking propensity and environmental boldness, as well as in respect of decisions to exploit opportunity.

The study also indicates significant correlation between organisations' share Beta coefficient and two of the three key factors that comprise intrapreneurship. This confirms the notion that intrapreneurial organisations could be more prone than their counterparts, to volatile market movements of their shares.

The study does not propose a definitive model, but presents a practical model that can be implemented – a model that could improve organisations' results, specifically in the area of financial performance.

OPSOMMING

Hierdie studie fokus op korporatiewe entrepreneurskap of intrapreneurskap. Huidige navorsing oor die onderwerp konsentreer op tradisionele teorieë waarin die skep, strukturering en fokus van besigheidsondernemings prominent is. Die werklike fokus van intrapreneurskap behoort egter die mense waaruit die organisasie bestaan, asook hulle interaksie deur middel van strukture en prosesse in te sluit. Baie individue in organisasies kan moontlik entrepreneuriese aktiwiteite inisieër of kan betrokke raak daarin, maar kan aan bande gelê word deur die gebrek aan bemaatiging en deur gebrekkige toegang tot hulpbronne.

Hierdie studie het 'n oplossing vir die probleem ten doel deur organisatoriese na binne te fokus, asook deur voorstelle gerig daarop om intrapreneurskap te bevorder. Die studie poog voorts om die vraag te beantwoord hoe interne strukture en prosesse intrapreneurskap kan fasiliteer en hoe intrapreneurskap bevorder kan word deur te fokus op die verhouding tussen bestuur en personeel. Hierdeur word 'n bydrae gelewer ten opsigte van intrapreneurskapsnavorsing. Die studie ondersoek ook die verwantskap tussen 'n voorgestelde model vir intrapreneurskap en finansiële prestasie. Die studie ondersoek verder kontekstuele intrapreneurskap.

Intrapreneurskap in 'n organisasie behoort positiewe resultate tot gevolg te hê. Die verwantskap tussen een van die positiewe resultate, naamlik finansiële prestasie en intrapreneurskap word daarom in die studie ondersoek. Finansiële data vorm die basis van baie metings van organisatoriese prestasie. Dit is egter baie moeilik om spesifieke finansiële inligting van maatskappye te bekom en daarom maak navorsers soms gebruik van uitvoerende personeel se siening van finansiële inligting, byvoorbeeld ten opsigte van die vermeerdering

of vermindering van verkope. Dit is egter 'n subjektiewe oordeel en gevolglik fokus hierdie studie eerder op 'n sektor van die Johannesburgse Effektebeurs, omdat gepubliseerde inligting aangaande genoteerde maatskappye geredelik beskikbaar is. Hierdie inligting word gebruik as basis vir die berekening van 'n indeks sodat organisasies wat swakker en beter finansiëel presteer, onderskei kan word.

Die studie identifiseer nege dimensies van die konstruk Intrapreneurskap. Hierdie dimensies is deur middel van faktoranalise gereduseer tot drie dimensies, waarvan een na binne en twee na buite projekteer. Die finale model vir intrapreneurskap behels proaktiwiteit, innovasie, en bestuur se invloed op stelsels, procedures en verhoudinge.

Die model verteenwoordig die uitgangspunt ten opsigte van 'n aantal produkte en die veranderinge aan produkte, navorsing en ontwikkelingsleierskap, die organisasie se mededingende posisionering, risiko neming, die omgewingsdurf en bestuur se besluitnemingsprofiel ten opsigte van benutbare geleenthede. Die model verteenwoordig verder bestuur se invloed op interne strukture en prosesse asook verhoudinge wat betrekking het op die insluiting van intrapreneurskap in die daarstel van doelwitte en 'n stelsel wat kreatiwiteit bevorder, fasiliteer en bestuur. Dit skep 'n sisteem van *intrakapitaal* wat hulpbronne verskaf, en verteenwoordig oop en nie-territoriale kommunikasie. Die model maak voorsiening vir personeel se insette en laat intrapreneuriese vryheid toe. Dit stel 'n oplossingskultuur ten opsigte van probleme, asook personeelbemagtiging, voor. Laastens stel dit voor dat bestuur die voorstanders van intrapreneurskap moet wees.

In die studie word twee hipoteses daargestel om die verwantskap tussen finansiële prestasie en intrapreneurskap, asook kontekstuele intrapreneurskap te ondersoek. Die resultate van die hipoteses kan as volg opgesom word:

Daar is 'n verwantskap tussen finansiële prestasie en intrapreneurskap soos voorgestel deur die sleutelfaktor bestuur. Die sleutelfaktor bestuur is dus 'n betekenisvolle voorspeller van finansiële prestasie. Organisasies met hoër vlakke van intrapreneurskap kan daarom moontlik beter presteer as hulle eweknieë met laer vlakke van intrapreneurskap. Die drie sleutelfaktore van die voorgestelde model toon elk ook 'n positiewe korrelasie met die finansiële indeks. Die faktor wat by die tradisionele intrapreneurskapmodel gevoeg is, verbeter die korrelasie met die indeks.

Die studie bevestig die standpunt dat die grootte van 'n organisasie, soos gemeet deur omset en aantal werknemers, nie 'n invloed op intrapreneurskap het nie. Hierdie bevinding is in teenstelling met die wanvoorstelling dat slegs klein organisasies intrapreneuries kan wees. Die studie bevestig ook dat ouer organisasies waarskynlik minder intrapreneuries sal wees. Jonger organisasies sal waarskynlik meer proaktief wees deur gebruik te maak van nuwe tegnieke, deur mededinging, riskoneming en deur omgewingsduif.

Die studie wys ook op die betekenisvolle korrelasie tussen organisasies se Beta (β) waarde van hul aandele en twee van die drie sleutelfaktore waaruit intrapreneurskap bestaan. Die gevolgtrekking is dus dat organisasies wat meer volatiele relatief tot die mark is, 'n groter skommelingstendens het wanneer hulle met die totale mark vergelyk word.

Die studie probeer nie om 'n allesomvattende model vir intrapreneurskap voor te stel nie, maar probeer eerder om 'n prakties implimenteerbare model daar te stel wat moontlik positiewe resultate kan lewer, veral in die area van finansiële prestasie.

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CHAPTER 1

INTRODUCTION AND STATEMENT OF THE PROBLEM

1.1 Introduction

This chapter outlines the background to the study. It introduces the objectives of the study and outlines the basic methodology that is used to answer the research questions. It consists of eight sections. In the first four sections, the rationale for the study is introduced. In the final parts of the chapter, the research methodology, scope and plan of the study are presented.

1.2 Background to the study

It is the purpose of this study to formulate a systems model, which could facilitate intrapreneurship in the larger South African organisation. The ‘larger South African organisation’ is delimited to industrial organisations for the purposes of the study. The classification of industrial organisation is seen as the collective of non-financial corporate business enterprises as defined by The Institutional Sector Classification Guide for South Africa (*South African Reserve Bank Klasgids*, 1999: 1)

The current work environment is very different from that of previous decades. The fundamental difference lies in the nature of change itself. Business has always been faced with changes in the environment and, in order to survive has had to adapt to them. Yet, the source of current changes now faced is different in magnitude and nature. The rules for survival have therefore also changed in this new environment. Survival depends on understanding the nature of these changes and the way they affect business practice, including

the ability to take appropriate and timeous action. There are changes over which companies and managers have no direct control. This new, essentially unstable, environment can be defined as turbulent. One of the many implications of this definition is that a turbulent environment is dangerous, particularly when not recognised as such. For many companies, the inevitable result of this turbulent environment is a 'catastrophe' situation, which can only be resolved by unprecedented action. Blinstead describes the turbulent environment through a model that is depicted in Figure 1.1 (Peters, 1987: 13).

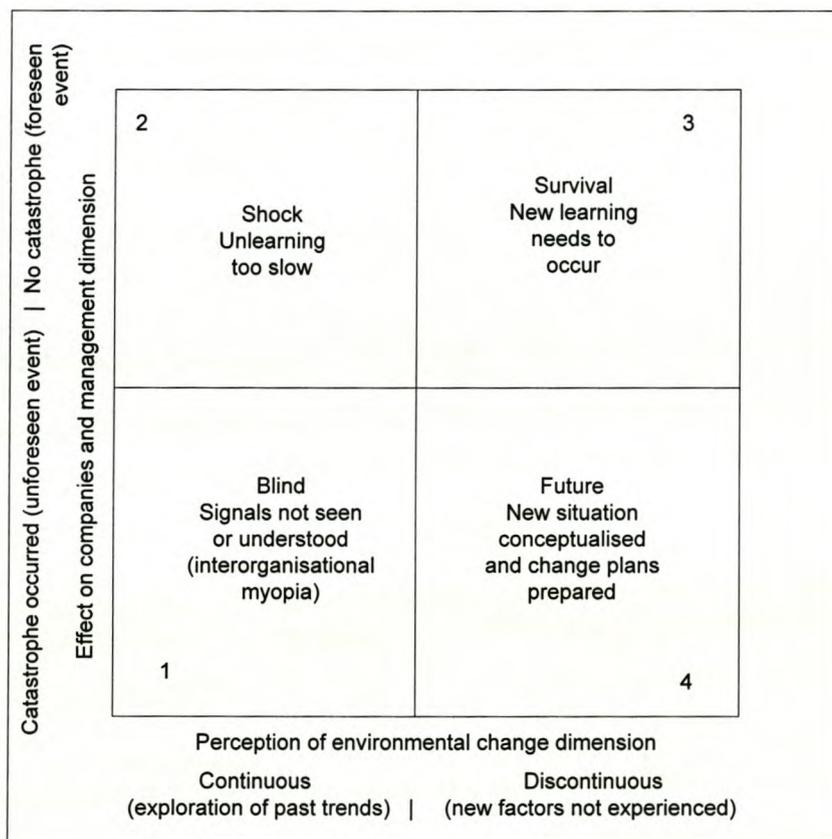


Figure 1.1 – The position of companies in turbulent environments

Source: Adapted from Blinstead in Peters (1987: 13)

This model describes the four classic outlooks of companies – companies that are blind, in shock, in survival mode, or future orientated. During these times, although whole

organisations are affected, pockets within organisations can operate in different ways. Some parts may recognise the changes and respond accordingly whereas others will not. It is in these pockets that dynamic response occurs, often utilising innovation and creativity as tools of rescue, whether the organisation as a whole promotes it or not.

Robert and Weiss (1988: 3) state that the romantic view of business entrepreneurs who, with great prominence and 'swashbuckling' methodology (in the manner of fearless pirates), catapult new ideas into being by 'storming the walls of establishment' is pure fiction. They believe that the famous entrepreneurs (like Ray Kroc of McDonald's restaurants) and the not so famous 'middle managers' of large organisations, are not pirates, but rather disciplined 'sailors' who anticipate the winds and the tides of change. The challenge emerging from this is how one organises and mobilises the whole organisation and its prevailing culture to act as these 'life-saving' pockets do, initially to face the crisis and ultimately to extend business. How does one revive a once-thriving business that has become riddled with bureaucracy and cumbersome processes that stifle its potential?

South Africa as a true democracy is still in its infancy and is faced by daunting challenges, the biggest of which include creating jobs and a stable economy. Conradie and Spilsbury (2002) point out that in spite of the fact that the South African economy has undergone significant changes in the past ten years in setting a foundation for higher levels of economic growth, key elements are still elusive. Government continues to be vague about privatisation. The all-important foreign direct investment that could make a difference to unemployment and development remains. Although the decline in the value of the Rand favours export, it does nothing to help internal conditions, especially in terms of inflation targets. In the 2002 budget, the Minister of Finance of South Africa projected an optimistic outlook for the years up to

2004. This outlook is however, based on assumed forecasts, for example growth in GDP (gross domestic product) from the 2,2% in 2001 to 3,6% in 2004 and a decline in the CPIX (consumer price index excluding the effects of interest rates on housing mortgage bonds) from 6,6% in 2001 to 4,7% in 2004 (SACOB, 2002). However, it is far easier to project economic growth than to achieve it. Preece (2000: 20) emphasises this very point by referring to the inability of government during the post-apartheid nineties to narrow the gap between economic forecast and retrospective reality.

South Africa needs to remain stable and compete in global markets. This economic climate can be established by increasingly relaxing exchange controls. Increased privatisation, greater savings and higher efficiency across all areas of government remain key elements. Moreover, a higher sustainable growth requires not only operational efficiency from the state, but also a substantial rise in private sector efficiency.

Clearly, what has been said above is indicative of a changing environment that presents major challenges. The way to address these challenges must be determined.

There is clear economic evidence that most real growth in major economies in the world originates from small to medium-sized companies. Typically, these companies are young enough and small enough to have retained their original entrepreneurial spirit. They are creative and innovative and are not restricted by the bureaucracy that sometimes characterises large organisations. Large, mature companies do not usually have the same levels of product innovation, customer satisfaction and employee commitment, but rather concentrate on shareholder return (Farrel, 1988: 8). In addition, the cost of product and technology innovation that is critical for growth today can be as much as 24 times greater in large

companies than in small ones (Farrel, 1988: 8). It follows that part of the answer may lie with the revitalisation of the Industrial organisation.

Catastrophe and change are not the only circumstances that demand a response from an organisation. There is also a place for the creation of new business through innovation, regardless of the obstacles and challenges and a place for pioneers to excel by using their developed creative skills.

Struwig (1991) has already demonstrated that the establishment of intrapreneurship as a strategy can be successfully implemented in companies. Maas (1996) also confirms that enterprises should be creative in order to survive in turbulent environments. This study wishes to expound on these findings by attempting to find answers to the questions articulated later in this chapter. This will be done through the formulation of a systems model that has special reference to the concepts of innovation, creativity, the exchange of information, the balance between freedom and control and a willingness to take risks.

1.3 Statement of the problem

Robert and Weiss (1988: 3), as mentioned in Section 1.2 above, note that middle managers promote entrepreneurship within large organisations. However, De Coning and Hill (1993) found indications that middle managers could be very frustrated with the way that entrepreneurship is practised within organisations. In an exploratory study that measured the perceptions of middle management with regard to intrapreneurship in South African organisations, De Coning and Hill (1993) found that South African organisations are perceived to be bureaucratic. Busenitz and Barney (1997: 10) furthermore note a difference

between the apparent 'risk taking' entrepreneurs and 'risk adverse' managers of large organisations. This factor naturally inhibits creativity, innovation and entrepreneurship. They also found that in terms of cultural and procedural aspects, an organisational ethos that will enhance innovation of employees did not exist. Organisations seemed to be prescriptive and restrictive in the areas in which employees could generate new business ideas. Organisations were also apparently relatively intolerant of risk, failures and mistakes. This short-term (survival) perspective of organisations is indicative of a great need for change if they wish to remain competitive or become more competitive.

Previous studies conducted by Goosen (1993) and Bergemasco (1988) support Faul's model of productivity (1986). Faul developed the concept of 'key factor' productivity, in which he proposed that the presence of key factors would be indicative of higher levels of productivity and internal efficiency. Some of the factors identified by Faul and confirmed by Goosen, need to be highlighted – such as experimenting, a questioning culture, feedback and participation. These factors are all crucial ingredients in the processes of creativity and innovation and are therefore integral parts of the entrepreneurial processes within organisations. The fact that productivity, or internal efficiency, is inter-dependent on the continual flow of 'creativity' of the organisations' employees is demonstrated not only by the studies mentioned, but also by the very being of organisations like 3M (Minnesota Mining and Manufacturing) (Fry, 1987). As such this study concentrates on the identification of similar 'key factors' to represent intrapreneurship (as detailed in Section 7.4 and Section 7.5).

The following questions arise: "How does one ensure that an organisation retains and develops its intrapreneurial attributes?" and "What effect will entrepreneurship have on organisational performance?" Innovation is crucial to organisations in the creation of a

competitive advantage and that it is a key element of intrapreneurship (Struwig, 1991: 3). The major thrust behind corporate entrepreneurship is a revitalisation of innovation, creativity and managerial development in organisations (Kurato, Hornsby, Naffziger and Montagno, 1993: 33). The work of Amabile, Conti, Coon, Lazenby and Herron, (1996) alludes to the fact that enhancing the creative performance of employees is a necessary step in the endeavours of an organisation to reach competitive advantage. This view is shared in the dimensional breakdown of theorised corporate entrepreneurship. Covin and Slevin (1989), Ginsberg (1988), Miles and Arnold (1991), Miller (1983), Morris and Paul (1987), Antoncic and Hisrich (2001), Stopford and Baden-Fuller (1994), Zahra (1991) and Knight (1997) all propose that the dimensions of innovativeness, self-renewal and proactiveness underlie corporate entrepreneurship. Researching the areas mentioned can provide insight into corporate entrepreneurship.

1.4 Objectives of the study

The two main objectives of the study are to add dimensions to the current understanding of the construct intrapreneurship and subsequently investigate the relationship between financial performance and intrapreneurship.

The following questions and issues will be dealt with:

- a. Can a set of key factors be identified to add to the well-researched body of knowledge on corporate entrepreneurship?

- b. Do innovation and creativity play significant roles as mechanisms in corporate entrepreneurship?

- c. Does the balance between entrepreneurial flair and the need for control within an organisation play a role in corporate entrepreneurship?

- d. Is there a relationship between a calculated index of financial performance and the proposed elements of a model of corporate entrepreneurship?

1.5 Scope of the study

The researcher intends to make a contribution within the South African context. This study will therefore concentrate on industrial organisations in South Africa and specifically within the Industrial Sector of the Johannesburg Stock Exchange.

1.6 Methods of investigation

Oppenheim (1992: 7) proposes that the following research methodology be used for studies of this nature:

1. Determine the aims of the study and theories to be investigated. General aims must be operationalised and hypotheses constructed. This should lead to the determination of variables. For each of these variables, formulate questions, scales and indicators.
2. Review the literature and discuss issues with interested organisations and individuals.
3. Conceptualise the study and formulate research objectives.
4. Design the study and determine its feasibility within the limitations of resources.
5. Decide which hypotheses will be investigated.
6. Design and adapt the research instruments such as questionnaires.

7. Do the necessary pilot study work.
8. Design the sample and determine the population.
9. Draw the sample.
10. Do fieldwork.
11. Process the data.
12. Conduct statistical analysis.
13. Assemble the results and test the hypotheses.
14. Tabulate the results and draw conclusions.

In order to achieve the objectives stated in 1.4 and drawing on the methodology outlined, the researcher decided on the research methodology depicted in Figure 1.2.

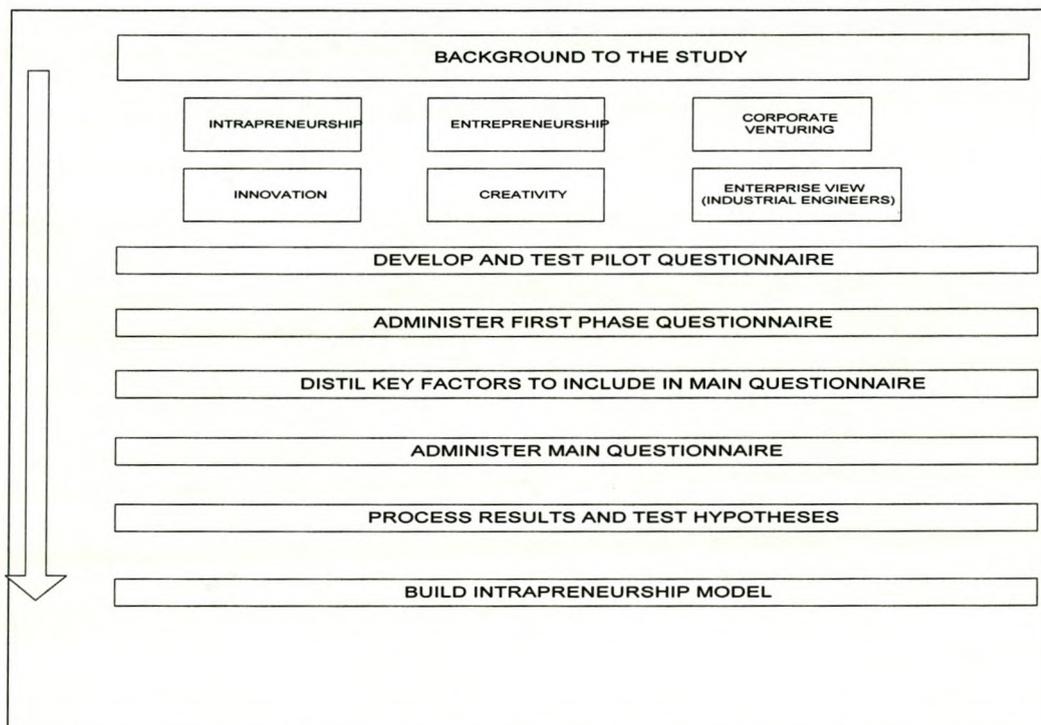


Figure 1.2 Study methodology

1.7 Literature study

A literature study concerning the following subjects was conducted:

- Intrapreneurship and corporate venturing
- Entrepreneurship
- Innovation
- Creativity
- Entrepreneurial environments
- A brief overview of the benefits that could be obtained by utilising some of the methods employed by industrial engineers in order to view entrepreneurship.

Lehaney and Clarke (1995: 14) state that regardless of the methods used in a literature search, there should be evidence that the literature has been searched thoroughly. The material should be well summarised and a typology should be provided. There should also be a critical appraisal of the literature as a whole. In order to comply with these requirements and to ensure that only the most relevant and latest material is used for the theoretical basis of this thesis, the researcher has used current references unless the author is considered an authority on the subject. Journals and articles were also used as a source of the latest thoughts on the subjects.

Exploratory research was conducted through unstructured interviews (described in Section 7.4.1) and a basic questionnaire was used in a pilot study (described in Section 8.4.1). The purpose for using this methodology was to familiarise the researcher with entrepreneurship, the state of intrapreneurship in a typical intrapreneurial organisation, the views of

management layers on which principles would best promote intrapreneurship and the views of organisational layers on the parameters within which intrapreneurship should operate.

1.8 Definition of concepts

The main concepts of entrepreneurship, intrapreneurship, creativity and innovation will be discussed more fully in the relevant chapters. However, brief descriptions are introduced here to orientate the reader.

Entrepreneurship or Entrepreneur. Richard de Cantillon introduced the term ‘entrepreneur’ more than two centuries ago when he identified risk as the primary role of entrepreneurs.

Parkinson (1990: 1) traced the origin from the French words *entre* and *prendre* meaning between and take. The resulting compound word therefore means something like ‘undertaker’ – someone who undertakes a venture or someone who redeploys assets and resources from an area of low yield to areas of high productivity and yield (Robert and Weiss, 1988: 2).

According to Schumpeter (1934: 74), the entrepreneur attempts to reform or revolutionise the pattern of production by exploiting a discovery. This means that the entrepreneur endeavours to use new technology to manufacture an existing product; or to use existing technology to deliver a new product; or redeploys existing resources for new outputs, or even creates new markets for goods.

Entrepreneurship can be seen as the pursuit of opportunity beyond the resources currently controlled. Entrepreneurship is a way of managing rather than a specific economic function or characteristic of an individual.

Intrapreneurship or intrapreneuring. Intrapreneuring (Pinchot, 1985: 12) is a revolutionary system for speeding up innovation within large firms by making use of their entrepreneurial tenant. Intrapreneurs are therefore those entrepreneurs who operate within organisations. The implication of entrepreneurship in large organisations is that entrepreneurial activities are explicitly supported by the enterprise, its resources are deployed for this purpose and it is conducted by the organisation's workers.

Creativity. Creativity is the ability to create, to be productive, to display imagination and artistic or intellectual inventiveness, to stimulate imagination and inventive powers. Gretz and Drozdeck (1992: 7) see creativity as the ability to make, or otherwise bring into existence, something new, whether a solution to a problem or a new method, or a revised or new object or form. Creative performance can be defined as products, ideas, or procedures that satisfy two conditions: (1) they are novel or original and (2) they are potentially relevant for, or useful to, an organisation. Majaro (1992: 6) defines creativity as the "thinking process that helps us to generate ideas".

Innovation. Entrepreneurs achieve the redeployment of resources (mentioned above) by the process of innovation, which consists of the systematic anticipation, recognition and exploitation of change (Robert and Weiss, 1988: 2). Oldham and Cummins (1996: 608) perceive that innovation rather refers to the successful implementation of the results of creativity at the organisational level. Majaro (1992: 6) regards innovation as the practical application of ideas towards meeting an organisation's objectives more effectively.

1.9 Layout of the study

The study will be divided into two main sections. The first will concentrate on aspects of entrepreneurship, intrapreneurship, creativity and innovation. This section will attempt to contribute to current thoughts on intrapreneurship and will conclude with the development of a model for intrapreneurship. The second will investigate financial success and deal with the main hypothesis.

Chapter Two will deal with the theory of entrepreneurship and will concentrate on entrepreneurial attributes and characteristics. It will also deal with misconceptions regarding entrepreneurs.

Chapter Three will provide a theoretical overview of intrapreneurship and corporate venturing. It will closely examine the intrapreneurial processes as well as frameworks and mechanisms for venturing.

Chapter Four will examine the creative processes and will highlight the concept of serendipity. It will also study the environments and motivational factors that will sustain and develop creativity. This chapter will also link creative processes with innovation.

Chapter Five will summarise the process of innovation and provide information on the environments in which innovation works best and how to implement innovation.

Chapter Six will deal with entrepreneurial organisations in terms of their structures, design, behaviour, culture, internal processes and environments. In addition, it will concentrate on

entrepreneurial and innovation processes in organisations. It will also take cognisance of the views of industrial engineering on the subjects of enterprise and entrepreneurship and will introduce the concept of the 'realisation environment' (Rohrs *et al.*, 1993) of entrepreneurship.

In Chapters Seven to Nine, the research processes will be explained, data obtained from the research processes will be examined, statistical testing will be done and results interpreted.

1.10 Summary

In this chapter the questions that prompted this study were introduced – “How can entrepreneurship be promoted and developed within industrial organisations?” and “What is the relationship between entrepreneurship and organisational performance?” Hypotheses to examine these questions were introduced.

A brief description was given of how the study would be executed. In the following chapters, the concepts surrounding the research question will be considered.

CHAPTER 2

THE ENTREPRENEUR

2.1 Introduction

The body of theory relating to the entrepreneur is introduced in this chapter. Special attention is paid to the attributes and characteristics of the entrepreneur, and some of the popular misconceptions are highlighted. It is the purpose of this chapter to start extracting key information on the entrepreneur that can be used as building blocks for the development of the proposed intrapreneurial systems model.

2.2 The entrepreneur

2.2.1 Origins

In the definition of terms, the origin of the word entrepreneur is explained. The origin of the word can be related to someone who undertakes a venture. However, the compound word from *entre* and *prendre* can also be translated as ‘merchant’, ‘adventurer’, ‘projector’, or ‘employer’. The word appears to have been introduced, in its relationship to economics, by DeCantillon in about 1755 (Herron, 1990: 12). He proposed that an entrepreneur is primarily a bearer of uncertainty – in other words, someone who buys services or products at a certain cost and then sells them at an uncertain price in the future (in the hope of making a profit).

However, it was Say (Hisrich, 1986: 16) who first started to use the term as it is presently understood. He defined the entrepreneur as being the person who brings together the factors of production in such a way that new wealth is created, and in so doing combines the

functions of risk taker and manager. The entrepreneur therefore becomes an individual who directs and controls capital and labour, undertakes enterprises and bears the risk involved in an uncertain business environment.

Schumpeter (1934) supplemented these views, perceiving the entrepreneur as the prime mover of economic development. The entrepreneur has as his main drive the need to innovate. Schumpeter defines five areas of innovation namely: the introduction of new products, new methods of production, new markets, new sources of raw materials and new organisational structures. Schumpeter was also clear about the fact that entrepreneurs are not necessarily inventors, but they are responsible for using resources to exploit inventions.

Kirzner (1979) later supported Schumpeter's views. He added the fact that the entrepreneur is alert to profit opportunities and ready to exploit such opportunities. This role can be described as one of information acquisition. The view of Kirzner is of particular importance, as he illustrates the fact that the entrepreneur needs to be responsive to a changing environment. Schumpeter, in contrast, sees the entrepreneur as the source of change. Drucker (1993: 43) used Kirzner's views as the basis of his opinion that the entrepreneur always searches for change, responds to it and exploits it as an opportunity. Liebenstein (1968: 58) sees an entrepreneur as someone who achieves business success by avoiding the inefficiencies to which people or organisations are prone.

In this section, the origin of the definition of entrepreneurship was explored. The next section will expound on this in the light of the latest views.

2.2.2 Characteristics, competencies, conditions and context

A great deal has been said and written about the entrepreneur. This study, however, will focus on entrepreneurship within the industrial organisation and particularly entrepreneurship and its application within the new venture.

Herron (1990: 40) demonstrates that it is possible to identify relationships between certain entrepreneurial behavioural skills and new venture performance. This chapter will follow that train of thought. It will refer to the attributes, characteristics, behaviour and attitudes of the entrepreneur. Some misconceptions about entrepreneurs will be discussed.

Tropman and Morningstar (1989: 12) use a few simple observations to define the entrepreneur. They postulate that the entrepreneur is a combination of a thinker and a doer. The entrepreneur sees opportunities for new products or services, new approaches, new policies or new ways of solving historic problems. The entrepreneur does something about what he sees. An entrepreneur may also be described as a person who has the ability to explore the environment, identify opportunities for improvement, mobilise resources and implement action to maximise those opportunities (Vosloo, 1994).

Tropman and Morningstar (1989: 4) suggest that an 'ensemble' approach be taken to explain the entrepreneur. This perspective is called the Four C's Theory of Entrepreneurship and it concentrates on characteristics, competencies, conditions and context. They acknowledge the fact that different authors define different characteristics of entrepreneurs, but point out the most important consideration: characteristics are changeable and adaptable. They divide competencies into two major groups, those of skill and style. Skill is seen as acquired

performance in a wide range of areas from writing and speaking to specific business experience and the ability to undertake self-analysis and failure analysis. It is important to know what to do (skill) but the 'how' is determined by the context, which in turn implies style.

Whereas characteristics and competencies have a bearing on the individual and the nature of the person, conditions and contexts move away from the individual person to his/her milieu or immediate environment. **Conditions** refer to the organisational or inter-organisational matrix within which the entrepreneur carries out his or her daily activities. **Context** is the macro environment - the society, the world, the attitudes and structures of society that influence the conditions, competencies and characteristics. Conditions can be thought of as an intermediate level between the micro level of characteristics and competencies and the macro level of context.

Boyett and Finlay (1993: 117) studied the emergence of the educational entrepreneur within an organisation. Their findings therefore have a bearing on the understanding of the entrepreneur involved in new venture creation. They isolated ten attributes that are predictive of an entrepreneur namely: vision, the ability to allocate resources to ensure quality provision, the ability to delegate, the ability to organise, the ability to reduce individual and team stress and the ability to think long term. The entrepreneur accepts the responsibility of leadership, has the ability to motivate at all levels, to select and to develop a good team.

Although the qualities mentioned are applicable to leadership, they also apply to the organisational entrepreneur, as he/she does not operate in isolation. Tropicman and Morningstar

(1989: 205) confirm this in the following statement: “Entrepreneurial competencies are not a great deal different from the competencies that every manager needs.”

2.2.3 The behaviour and cognition processes of entrepreneurs

2.2.3.1 The way an entrepreneur thinks

Baron (1999) views the entrepreneur (and intrapreneur) in the light of behavioural and cognition processes. The successful entrepreneur thinks differently from the unsuccessful entrepreneur. Baron characterises the cognitive mechanisms of the entrepreneur in the following way. The entrepreneur is a counter-factual thinker. He/she virtually ignores the facts at hand and acts in a contradictory manner. The entrepreneur is an entrepreneurial optimist. Circumstances that would normally hamper a person will do little to discourage the entrepreneur. The entrepreneur is alert to opportunities and is orientated towards the future. While the ordinary man would prefer to understand and learn before attempting a task, the entrepreneur prefers learning and doing at the same time. The entrepreneur thinks in terms of the ‘big picture’ and believes in self-efficiency.

There are, however, cognitive pitfalls. Baron (1999) describes three main ones.

Because of a “planning fallacy” the entrepreneur believes that he/she can accomplish more than he/she actually can. The entrepreneur allows moods to influence judgements. This can be described as “affect infusion”. Through “heuristic processing” the entrepreneur sometimes “jumps to conclusions”, using mental shortcuts – even when systematic processing is needed.

2.2.3.2 The way an entrepreneur behaves

An entrepreneur's behaviour, especially the willingness to assume risks, is governed by his/her belief that one has influence over outcomes through either ability, effort, or skills. The entrepreneur believes that the environment can be controlled through his/her actions. This behaviour of 'perceived control' can be described by the construct 'locus of control' that was developed by Rotter (1966). The 'locus of control' construct is widely used as a measure to identify potential entrepreneurs. The work of Brockhaus and Horwitz (1986), Ahmed (1985), Begley and Boyd (1987), Brockhaus (1980), Cromie and Johns (1983), Venkataphy (1987), in this regard is important. Rotter's measure, and its later adaptations, have also been used widely in studies related to organisational and managerial issues (Durant and Nord, 1977; Spector, 1982; Jennings, 1983).

The manifestation of the entrepreneurs' behaviour can furthermore be characterised by their display of social skills. Baron (1999) differentiates between social capital and social skills. They believe that social skills are that wide range of proficiencies that enable people to get along well with others. Seen in an entrepreneurial environment, social skills are used in the creation of new alliances. They are applied in the interaction with vendors, clients, suppliers and others. They are valuable in forming partnerships and in raising and maintaining the levels of motivation and enthusiasm.

Social skills can be categorised as follows:

1. Social perception. The ability to 'read' others well – their motives, feelings and intentions.

2. **Impression management.** The entrepreneur is skilled at leaving the correct impression, for example when bargaining for capital. It is the ability to persuade and socially influence. This includes the changing of attitudes or behaviour in the desired direction.
3. **Social adaptability.** The ability to adapt to, or feel comfortable in, a wide range of social situations. It would, for example, be easier for the entrepreneur to initiate new contacts with prospective clients than for the non-entrepreneur.

2.2.4 Misconceptions

Many misconceptions surround the entrepreneur. Robert and Weiss (1988: 13) summarise popular misconceptions about entrepreneurs into eight misconceptions:

Entrepreneurs are high risk-takers. It is important to differentiate between high-risk taking and prudent risk-taking because people associate 'risk-taking' with entrepreneurship.

Entrepreneurs do take risks, but seldom unless the risk has been carefully considered.

Entrepreneurs are business owners, not employees. The endeavours of an organisation like 3M (Minnesota Mining and Manufacturing) prove that employees can be successful entrepreneurs. In this organisation every employee sees himself/herself as an entrepreneur and actively participates in the organisation's innovation processes. The organisation has a unique talent for finding commercial uses for new technologies, developing a given technology into dozens of marketable forms and finding novel applications for these products. Today they sell more than 6800 consumer and industrial products (Morris and Sexton, 1996: 7). **Innovation takes place only in small firms, not in large firms.** There are many small high-technology firms that excel at innovation. In contrast, it is natural for large organisations to structure themselves in order to maintain control. This leads to bureaucracy and less innovation.

Innovation and creativity thus seem to be more evident in small firms. One of the goals of this research is to find ways to assisting industrial organisations to promote innovation and creativity, despite the necessity for structure and control. **Entrepreneurs have global ideas only and do not start with anything less than that.** The truth is that entrepreneurs start small, but they aim high. This implies that creativity and innovation tend to lead to market leadership. **Entrepreneurs are people only responsible for ideas and should not be held accountable for implementation.** Robert and Weiss have found exactly the opposite in their research. Successful entrepreneurs display a high level of creativity and innovation and successfully implement their ideas. Entrepreneurs ‘make it happen’. **Entrepreneurs create resources.** Entrepreneurs do not create resources but they shift existing resources.

Entrepreneurs are not synonymous with venture capitalists. **Flashes of genius bring on creativity and innovation.** Creativity and innovation are usually the result of hard work. These are systematic, disciplined, pragmatic processes that allow people to be creative and innovative as part of their daily routines. **Entrepreneurs are born not made.** According to Robert and Weiss this is the most dangerous misconception of all, since creativity and innovation are acquired skills. It is true that many people are born with great gifts and talents, but they are not born as physicians, lawyers, or problems solvers – they acquire the skills. This is also true of leaders. Great leaders are not born, they are developed.

2.3 Key findings

Drawing from the views listed in the previous sections of this chapter, the essence of entrepreneurship can be summarised by nine key findings.

2.3.1 Entrepreneurs are individuals who make a difference

Thompson (1999: 210) views entrepreneurs as individuals who translate 'what is possible' into reality. They transform ideas into something that works. They have their own ways of dealing with setbacks, opportunities and uncertainties in the process of creating new products or processes. At times, entrepreneurs can be the people who start new businesses or new initiatives, at other times they will be employees in large organisations championing change.

2.3.2 Entrepreneurship is about spotting and exploiting opportunities

Some of the greatest inventors of our time, when asked about the method they use for 'inventing', have simply stated that they just answer to opportunity. If the supply of a specific component in a factory is a problem, the entrepreneur might come up with an alternative, or internally manufacture the component. Similarly, the entrepreneur might perceive a change in the eating habits of populations. He might see the need for consistency (of product) and value for money and reposition a well-known product to create a new venture. Andrews of King Pie did exactly that (Goosen, 1993). Thompson (1999: 281) relates a story that illustrates this identification of opportunity very well. Two marketers of a shoe manufacturer were sent to remote locations to identify new markets. The one came back and reported that the local people did not wear shoes and that the company would waste its time doing business there. One can intuitively anticipate the second marketer's views that there were limitless opportunities. A basic element of entrepreneurship is therefore the ability to recognise and take advantage of a business idea or opportunity.

2.3.3 Entrepreneurs find the resources required to exploit opportunities

This point was been identified in Section 2.2.4 of this chapter. Successful entrepreneurship is rarely the product of luck. It is rather the consistent, conscientious discipline to exploit available resources. Non-entrepreneurs frequently cite the lack of resources as an excuse when comparing themselves with entrepreneurs.

The fact that resources are not readily available will not deter the entrepreneur. Cornwall and Perlman (1990:197) illustrate this by pointing out the need for the entrepreneur in an organisation to “lie, steal and cheat” in order to achieve his or her goals. They define “steal” as obtaining resources, especially standard budgeted items that are not needed. A further key element of entrepreneurship is therefore the ability to organise the available resources in terms of capital, labour, raw materials, or whatever is required, to benefit from the opportunity.

2.3.4 Entrepreneurs add value

Entrepreneurs use the resources described above to create services and products. In this process of creativity and innovation, they constitute a vital link in the value addition chain.

2.3.5 Entrepreneurs are good networkers

The entrepreneur needs resources in order to add value. As has been stated, these resources are usually not abundantly available. In Section 2.2.3.2 the entrepreneur’s ability in the area

of social skills was discussed. It is this skill, in particular, that allows the entrepreneur to network and obtain the necessary resources.

2.3.6 Entrepreneurs create capital

Resource acquisition, adding value and networking are the basic elements used to create financial, social and artistic or aesthetic capital. Financial capital is the creation of wealth. This is the driver or motivator of many businesses where employment is created. Social capital is the re-application of under-utilised resources. Artistic capital is the enrichment of peoples' lives, for example, through music and architecture.

2.3.7 Entrepreneurs manage risk

Entrepreneurship is usually associated with risk. However, the fact that entrepreneurs are not averse to risk does not make them 'risky'. The entrepreneur rather manages risk, or takes quantified risks. A common link in all the literature on entrepreneurship is that of entrepreneurial judgement. The entrepreneur makes judgemental decisions about opportunity and the allocation of resources. Different people will make different decisions when faced with opportunity. While judgements differ, the entrepreneurial individual will back his view by acquiring assets, that are discounted by more cautious or conventional people, undertaking projects that others do not consider profitable, and starting enterprises where others do not see opportunity beckoning.

A key element of entrepreneurship is therefore the ability to assess and bear the risks of creating, owning and managing an enterprise.

2.3.8 Entrepreneurs are determined in the face of adversity

Entrepreneurs are self-motivated and do not easily give up. They persevere. They have a strong belief in 'self' – an element that allows them to overcome challenges, especially unexpected challenges. Timmons (1980) define, among other things, the following characteristics of entrepreneurs that allow them to be successful: commitment, determination and perseverance. Apart from persistence in problem solving, they have a tolerance for ambiguity, stress and uncertainty.

2.3.9 Entrepreneurship involves creativity and innovation

Entrepreneurs and intrapreneurs are innovators and idea generators (Knight, 1967: 478). The outcomes of creativity and innovation range from new products to new markets and new processes. Knight (1967: 478) identifies new products and services as the highest consequence of entrepreneurial actions. Jennings and Young (1990: 55) defined intrapreneurship as the process of developing new products and new markets. They employed Miller and Friesen's (1983: 2) procedure to obtain a subjective measure of intrapreneurship. Jennings and Young measured innovative activities during a survey with a view to establishing the level of entrepreneurship (1990: 57). Morris, Avilla and Allen, (1993: 595) used the number of new products, services and processes introduced by a company to measure the frequency of entrepreneurship. One can therefore conclude that entrepreneurship involves creativity and innovation.

Figure 2.1, adapted from Thompson (1999: 212) below summarises the concept of entrepreneurship.

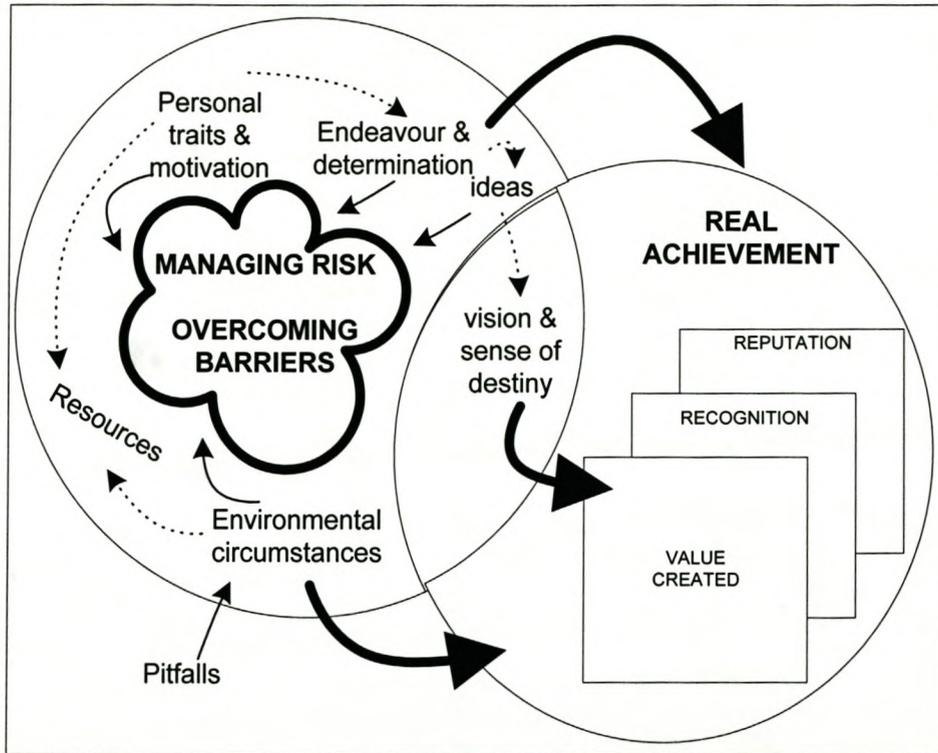


Figure 2.1 The entrepreneur

Source: Adapted from Thompson (1999: 212)

From this generalised view of entrepreneurship, the next chapter will continue to examine entrepreneurship as practised within organisations by the intrapreneur.

CHAPTER 3

INTRAPRENEURSHIP AND CORPORATE VENTURING

3.1 Introduction

This chapter reviews the theory of intrapreneurship and corporate venturing. It concentrates on the processes or mechanisms by which intrapreneurship operates and through which the corporate venture is created. The chapter will explore the performance of new ventures and venture teams. It will also describe the process of developing a strategy for venturing.

3.2 Definition of intrapreneurship

In Chapter Two the link was made between entrepreneurship, intrapreneurship, creativity and innovation. The intrapreneur may be a creator or inventor, but is always the dreamer who works out how to turn an idea into a profitable reality. Pinchot (1985: 9) defines an intrapreneur as “any of the dreamers who do” – as those who take hands-on responsibility for creating innovation of any kind within an organisation.

The strategy literature identifies three types of corporate entrepreneurship or intrapreneurship. One is the creation of new businesses within an existing organisation. This is normally called corporate venturing or intrapreneurship. Another is the more pervasive activity associated with the transformation or renewal of existing organisations. The third is where the enterprise changes the "rules of competition" for its industry in the manner suggested by Schumpeter (Stopford and Baden-Fuller, 1994: 521).

Pinchot proposes that as intrapreneurs, individuals will champion new ideas from development to complete profitable reality. Other authors expound on this definition by including the need to recognise that entrepreneurial activities revolve around organisational authorisations and resource commitments for the purpose of innovative results (Burgelman, 1984; Kanter, 1988). While this concept appears straightforward, some authors have concluded that intrapreneurship may take several forms. Schöllhammer (1982) proposes five broad types of intrapreneurship, which he labels administrative, opportunistic, imitative, acquisitive and incubative. Each of these represents a strategic form of corporate entrepreneurial activity. "Incubative" intrapreneurship refers to the creation of semi-autonomous units within an organisation for the purpose of sensing external and internal innovative developments. These units also serve the purpose of screening and assessing new venture opportunities and initiating and nurturing new venture developments.

Luchsinger and Bagby (1987: 11) describe intrapreneurship as ventures that are associated with an ongoing organisation. From a systems perspective, intrapreneurship can be considered as a dialectic management process. It manifests itself through corporate venturing (establishing new businesses as part of the existing business) and the strategic renewal of existing organisations by transforming the very key ideas on which the existing business has been built (De Coning, 1992: 11).

Pinchot (1985: 4) views intrapreneurship as a method of using the entrepreneurial spirit where many of the best people and resources are – within the large organisation. Pinchot (1985: 83) moreover sees intrapreneurship as a social invention, which allows people to express their own potential more fully. He sees intrapreneurship as a system that frees individuals and organisations to build fuller, more meaningful, richer and more productive business lives.

3.3 Characteristics of an intrapreneur

Pinchot (1985: 65) notes the characteristics of an intrapreneur as the five great myths that surround the intrapreneur. These misconceptions are important because they include some corporate executives' beliefs as to why intrapreneuring cannot work. These negative impressions articulated by Pinchot were translated into five primary characteristics:

The intrapreneur is driven by a deep, personal need for achievement. Pinchot argues that money is rarely a driving force for entrepreneurs. Although this may be true, one should take cognisance of the specific circumstances in which the intrapreneur might find himself/herself, for example, his or her financial position, which could nullify this view.

Intrapreneurs, like entrepreneurs, have a strategy of minimising risk. This stands in contrast to the belief that they are high-risk takers. Pinchot, like Robert and Weiss (1988: 13), believes that this is not entirely true. This is an important characteristic in differentiating between entrepreneurs and intrapreneurs. The entrepreneur might find obstacles in attracting clients or financiers but as owner or partner might still have relative freedom to behave entrepreneurially. The intrapreneur, however, will have his or her freedom severely curtailed if management perceives it to be a business risk.

Intrapreneurs, as has been said in the introduction to this study, are aware of the dynamics of a changing environment. They quantify risks and take factors affecting the outcome of their innovation into account. **Their decisions are based on analysis.** Contrary to this fact, many believe that entrepreneurs "shoot from the hip", or make rash decisions on the spur of the moment, as a result of a lack of analytical skills. If intrapreneurs were totally intuitive in their

decision-making, they would simply not be able to work within a corporation. It is true that they do have intuitive skills that they apply, but it does not mean that they lack analytical skills. Given the information age in which sophisticated but simple tools are available, it is wrong to assume that intrapreneurs live by intuition.

Honesty and integrity are as important to the intrapreneur as they are to the entrepreneur. Many believe that intrapreneurs are amoral. Seen from the venture capitalist's viewpoint, that might be a popular description. However, one should take into account the main difference between the intrapreneur and the entrepreneur – that of being an employee within an organisation. Business ethics will force the amoral intrapreneur very quickly off the payroll. The intrapreneur has made the choice to be within the organisation and will thus endeavour to secure his or her employment there. Amoral behaviour will be contrary to achieving that.

Intrapreneurs can be described as achievement-motivated, rather than power-hungry empire builders. The history of successful entrepreneurial organisations built from nothing, for example, the fast food chain McDonald's, may create the viewpoint that intrapreneurs usually aim for 'empire-building'. Within an organisation that description may fit the power-motivated executive better than it fits the description of the intrapreneur.

The following characteristics can be noted in expounding on the differences and similarities between entrepreneurs and intrapreneurs. Both apply resources in order to increase productivity. Both rely heavily on innovation and creativity. Unless a one-man business is observed, both will be seen to rely on teamwork and group innovation. However, the entrepreneur operates in his/her own setting, whereas the intrapreneur operates within an

organisation. As such, the corporate entrepreneur (intrapreneur) will have a more difficult job than the entrepreneur. This is because the intrapreneur does not have the same level of control over environmental variables and resources as the entrepreneur does. The entrepreneur also carries more risk, because risk is borne by the organisation in the case of the intrapreneur. The entrepreneur is the manager/head whereas the intrapreneur reports to higher authority within the organisation (Luchsinger and Bagby, 1987: 12).

3.4 Intrapreneurial processes

Stopford and Baden-Fuller (1994:521) see the processes of intrapreneurship within the organisation as having three stages. Stage one is that of individual entrepreneurship, resulting from entrepreneurial-minded individuals and small teams working on ideas with scant relevance to the overall business strategy – nearly a form of ‘off-line’ experimentation. The results cannot readily be harnessed for the enterprise without connection to the power structure of the organisation.

Stage two is the start of a process of renewal. Stopford and Baden-Fuller see this stage as starting when the chief executive's initial entrepreneurial instincts begin to be shared and modified by the top team, which is the beginning of the transition from individual to corporate entrepreneurship. For this to happen, old behaviours have to be ‘frozen’ as new ones are developed. From these stages, the transition to stage three is gradual. In such organisations, there is an appearance of "things coming together" to get the organisation moving even faster (Stopford and Baden-Fuller, 1994: 534).

An alternative perspective of intrapreneurship, especially the process of venture creation can be obtained from the process model (Bhave, 1994: 235) described in Figure 3.1.

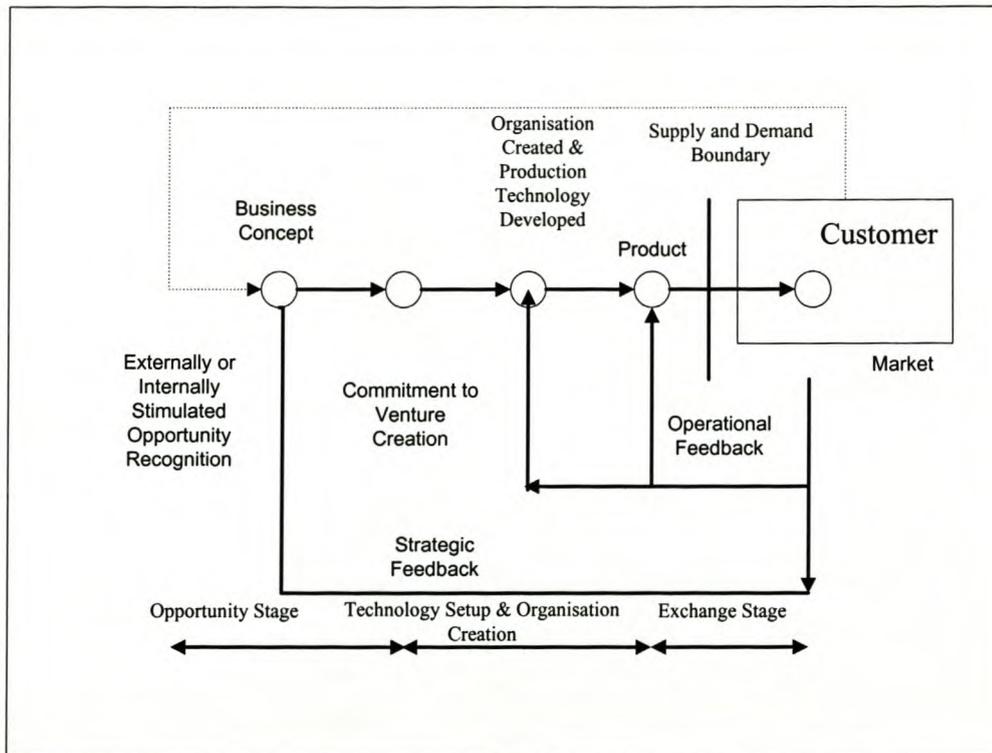


Figure 3.1 Process model of venture creation

Source: (Bhave, 1994: 235)

In this model, the intrapreneurial process and specifically the creation of the entrepreneurial organisation, is characterised by three main stages. Natural transition points in the venture creation process demarcate the stages. Both internally and externally simulated opportunity recognition sequences culminate in business concept identification. This is followed by the commitment to begin – a distinct step. An internal locus of control orientation spurs the intrapreneur on to act. Shapero (1982) and Krueger (1993) propose that the propensity to act, the disposition of intrapreneurs to act upon their decisions, is an essential element of the venture initiation process. The commitment to physical creation separates a hitherto invisible process from the subsequent visible one and it is a natural transition point between the two stages. Events in venture creation up to this point are therefore grouped into the opportunity

stage and a business concept is chosen. After the commitment to physical creation, intrapreneurs gather resources and use them in technology set-up, organisation creation and marketing. This is the most visible stage of venture creation. It concludes when a product, ready for customer use, is created for the first time. Because production technology is normally at the heart of this sub-process, it is chosen as the core variable to represent this stage. Once an idea has been transformed into a product and sold to customers for the first time, the intrapreneurial loop is complete. Customers evaluate products and give feedback. This is illustrated in the form of the operational and strategic feedback loops.

Another model that describes the innovation venture process can be obtained from the Kodak model. This model, as described by Kanter, et al. (1991: 79), is depicted below.

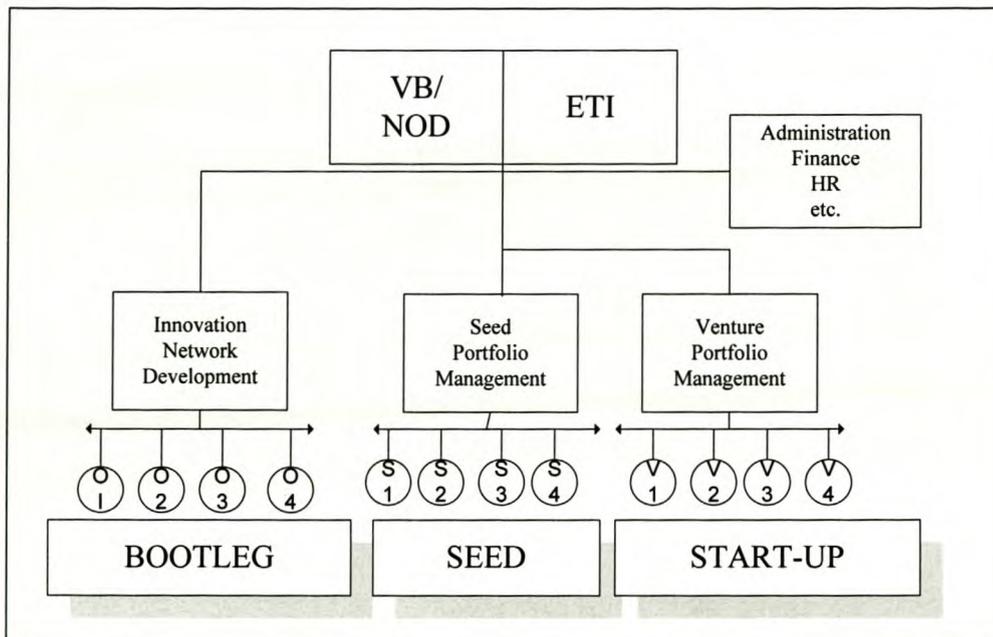


Figure 3.2 New venture organisational structure – Kodak

Source: Kanter, et al. (1991: 79)

Definition of acronyms used in the model:

NOD – New Opportunity Development

VB – Venture Board

ETI - A separate operating unit in the group of companies. Eastman Technologies Incorporated.

In this model, three phases are identified – bootleg, seed and start-up. In the **bootleg phase**, originators bring their ideas to corporate sponsors. Facilitators (identified as O1 – O4) counsel the originators in terms of the following specific issues: whether the project enhances Kodak's operations and whether there is a strategic fit between the project and Kodak's business. They also enquire whether the project is sufficiently large to justify expenditure. The marketability is questioned. In this phase there are efforts to ensure that the employees' creative instincts are not stifled.

If an internal sponsor for the project cannot be found (because it may be unrelated to the business), the originator takes the project to NOD (the seed phase).

The **seed phase** consists of four parts:

(1) **Pre-seed**. Originators actively transform ideas into working possibilities by coming up with a business rationale that illustrates technical possibility and marketing appeal. (2) **Early-seed**. In this stage of opportunity analysis, originators are allotted 20% of their workday to devote to their project and they receive a small grant. (3) **Late-seed**. NOD helps originators to design a formal business plan and develop a balanced management team, and they receive a bigger grant. (4) **Post-seed**. The management team now receives a large grant to develop a prototype and enter the beta-test market. They refine the business plan and select a general

manager. At the end of the seed phase, the VB evaluates the project and decides whether to award start-up money or not. If the project is funded it goes to ETI. Finally, the **start-up phase** takes place and the project is executed.

The methodology of the 3M organisation is comparable to this model of venture creation. Nicholson (1998) mentions three growth strategies that support corporate values at 3M. The programmes are the Pacing Plus Program, Supply Chain Excellence and Earning Customer Loyalty.

The Pacing Plus Program is important as it consists of more than 25 programmes, that offer high potential for growth and profitability. To be selected, these programmes must employ one or more proprietary technologies and must be so novel that they change the basis of competition in their markets. Underscoring the programs mentioned above is a mix of financial strategies and human resource policies. One of the financial goals is to produce 20% of sales from products that did not exist four years ago. (The others are an annual growth of 10% in earning per share; 27% more return on capital employed and 20%-25% return on equity).

3M actively pursues a culture of innovation in the organisation which Nicholson (1998: 4) describes as follows: "They begin by promoting an entrepreneurial approach that comes with a considerable amount of freedom to pursue innovative ideas". These ideas are not necessarily physical products (for example, Post-it Notes) but can also take the form of other products that have a bearing on the organisation, for example a management education tool to be used in the training and development of managers by a senior manager (Josefowitch, 1998). A further measure is that no personal or territorial ownership of products is allowed. This

promotes an open and collegial approach within the organisation. Staff members are allowed 15% of their work time to pursue their own ideas. The purpose of this unwritten rule is to encourage employees to talk about their ideas and to experiment. The Austin facility has a culture of networking and sharing of ideas, to the extent that staff at all levels from secretaries to senior management, share and communicate ideas and key organisational information (Caldwell, 1998).

3.5 Review of intrapreneurial factors

Common intrapreneurial elements identified in the review of literature are noted below. These factors, and the authors that subscribe to them, are summarised in Table 3.1.

Use of rewards. According to Cornwall and Perlman (1990: 127) rewards can be defined as the incentives available within the organisation. Rewards are not instant solutions but are rather the outcome of careful discussion and observation of what is needed for an organisation's employees, given the organisation's goals and strategies. Entrepreneurial organisations remove constraints on employees so that they will take risks and innovate. When this is accomplished, managers will reward correct behaviour and performance.

Management support. The empowerment of employees, championing of organisational processes, definition of internal systems, style and focus and corporate culture are some of the more important elements in management's support of intrapreneurship. A crafted strategy, whether defined by or lead by management, will ultimately determine the outcome of intrapreneurship.

Resources and their availability. In Chapter Two, the entrepreneur's ability to use and obtain resources for the outcomes of innovation was stressed. It is important for an organisation to organise its systems and structure so that that the intrapreneur can obtain resources. If, for example, an organisation is highly territorial in nature (referring to internal divisions or other groupings) it could prevent resources from being shared. One part of the organisation might have excess resources, while another might have to abandon projects/ ideas owing to a lack of resources. Similarly, internal policy could prevent the movement of resources. A typical example of this can be found in state or semi-state organisations in South Africa. Making private telephone calls in one of these organisations is not tolerated, even if they are paid for. This is not necessarily because of time constraints, but because of the system of public accounting, which demands that the revenue collected must be routed to central treasury – without any budgetary benefit to the organisation. In the case of telephone calls, the amount might be insignificant, but in the case of the repayment of the salaries of joint appointments with other sectors, it could be staggering. In such organisations, the insufficient availability of resources is not conducive to intrapreneurship.

Risk-taking and failure tolerance. The review of literature has indicated the risk-taking propensity of entrepreneurs and intrapreneurs. Table 3.1 indicates the authors that support that view. It also expounds on risk-taking by adding the element of the 'failure tolerance' that exists in many organisations. Pinchot (1995: 199) suggests that innovation cannot be achieved without risk and mistakes. He points out that even successful innovation often begins with blunders and false starts. If an organisation is risk adverse or does not tolerate mistakes, the intrapreneur, due to the risk to himself/herself, will not effectively innovate.

Table 3.1 Intrapreneurial factors

Element	Author
Use of rewards	Fry, 1987 Sathe, 1989 Block and Ornati, 1981 Scanlon, 1981 Sunder, 1981 Kanter, 1988 Cornwall and Perlman, 1990 Kao, 1991 Pinchot, 1985
Management support	Hisrich and Peters, 1995 Sykes, 1986 Sunder, 1981 Sykes and Block, 1989 MacMillan, 1986 Quinn, 1985 Cornwall and Perlman, 1990 Kao, 1991 Pinchot, 1985
Resources and their availability	Sathe, 1989 Von Hippel, 1977 Sunder, 1981 Sykes, 1986 Hisrich and Peters, 1995 Katz and Gartner, 1988 Kanter, 1988 Sykes and Block, 1989 Cornwall and Perlman, 1990 Kao, 1991 Pinchot, 1985
Risk-taking and failure tolerance	Block and MacMillan, 1993 Sathe, 1989 Sykes, 1986 Burgelman, 1984 Quinn, 1985 Kanter, 1988 Bird, 1993 Sykes and Block, 1989 Cornwall and Perlman, 1990 Kao, 1991 Pinchot, 1985

In the introduction to this chapter, the link between innovation and a specific view of intrapreneurship, that of corporate venturing, was created. The next section will further describe the venture organisation and its functioning, with particular attention to venture teams.

3.6 Venture organisations

3.6.1 Company-wide task forces and project organisations

Jolly and Kayama (1990: 250) defined five types of internal organisations that promote new ventures:

Company-wide task forces and project organisations within existing divisional structures, which report to senior corporate management. Companies opting for these structures usually integrate their R&D functions closely with the rest of the organisation. These companies rely heavily on ideas originating in their research laboratories. They have a coherent view of the business needs that must be cultivated.

Internal, voluntary teams within the divisional structures that are based on incremental resource commitments from senior corporate management. These teams face less direct interference from top management. Once initiatives have emerged, top management supports them.

Corporate staff, for promoting and monitoring new venture activities, which operate without line responsibility. This is a less formal arrangement. The advantage of having a corporate staff group to co-ordinate, but not direct, new venture activity is that senior management has

direct contact with each team. The role of corporate staff is to aid management and to act as sponsoring body on behalf of management.

A separate new venture department or division to which venture teams report. The creation of such a department or division, which has its own pool of resources and to which all teams report, is becoming more common. It is usually associated with companies involved in an active strategy of diversification. This internal organisation offers a number of advantages. These are the bringing in of new ideas without subjecting them to consensus building, the broadening of the search to include outside inventors, and the flexibility to arrange joint ventures.

A legally separate new venture company within which venture teams operate. This form of venture organisation is, to some extent, the logical conclusion of the examples previously cited. It can also be associated with a strategy of radical diversification.

3.6.2 Venture teams

Individual entrepreneurs do not always drive the venture creation process in organisations. Entrepreneurial teams are responsible for many new ventures. This is further underscored by the fact that in high technology ventures in particular, more skills are needed than those contained in a single person. In the assessment of venture teams, two questions must be answered: (1) How can high performance venture teams be created? (2) How should these teams be maintained and managed?

Kamm, et al. (1990: 7) developed a model for assembling entrepreneurial teams. It is based on six main areas of focus and is illustrated in Figure 3.3.

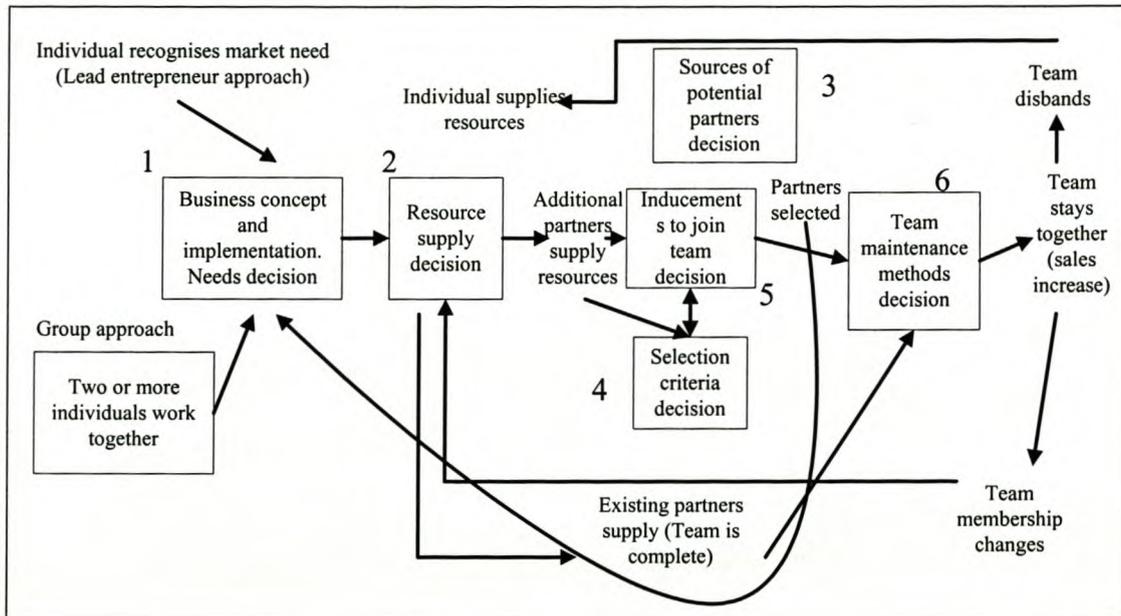


Figure 3.3 Decision-making model of entrepreneurial teams

Source: Kamm, et al. (1990: 7)

Pinto and Slevin added to this with the development of a 10-factor Project Implementation Profile (PIP), which will assist in the creation of venture teams (Pinto and Slevin, 1988). The ten critical factors are: (1) **Task definition** - the definition of the project task is of critical importance. It might be wide for the purpose of idea generation of possible concepts or narrow for the application of a proposed product. (2) **Top management support** is the willingness of top management to provide the necessary resources and authority for the success of the project. (3) **Project schedule/plan** - this is the detailed specification of individual action steps required for project implementation. (4) **Consultation** - consultation refers to client consultation and includes communication, direct consultation and active

listening to all parties/stakeholders. (5) **Personnel requirements** would include the identification, recruitment, selection and training of the necessary personnel for the project team. (6) **Technical tasks** involve the availability of the required technology and expertise to accomplish the specific technical action steps. (7) **Client acceptance** is the act of selling the final project to its intended users. (8) **Monitoring and feedback** is the timely provision of comprehensive control information at each stage in the implementation process. (9) **Communication** involves the provision of an appropriate network and necessary data to all key actors in the project implementation. (10) **Trouble shooting** is the ability to handle unexpected crises and deviations from the plan.

According to Slevin and Covin (1992: 373) these factors have proved to be effective tools for successful project team management in all scenarios. The factors provide the team manager with a broad template for managing and tracing key project factors.

Venture teams are involved in two processes of innovation within the organisation – process innovation and product innovation. Teams could be assigned to all business processes within the organisation with a view to improving them. In terms of product innovation, venture teams fulfil five critical roles. They are idea generation, entrepreneuring and championing, gate keeping, sponsoring and coaching.

Team performance is the outcome of various factors. The model in Figure 3.4 below, which illustrates team performance, stresses the determinants of project team creation (Slevin and Covin, 1992: 363).

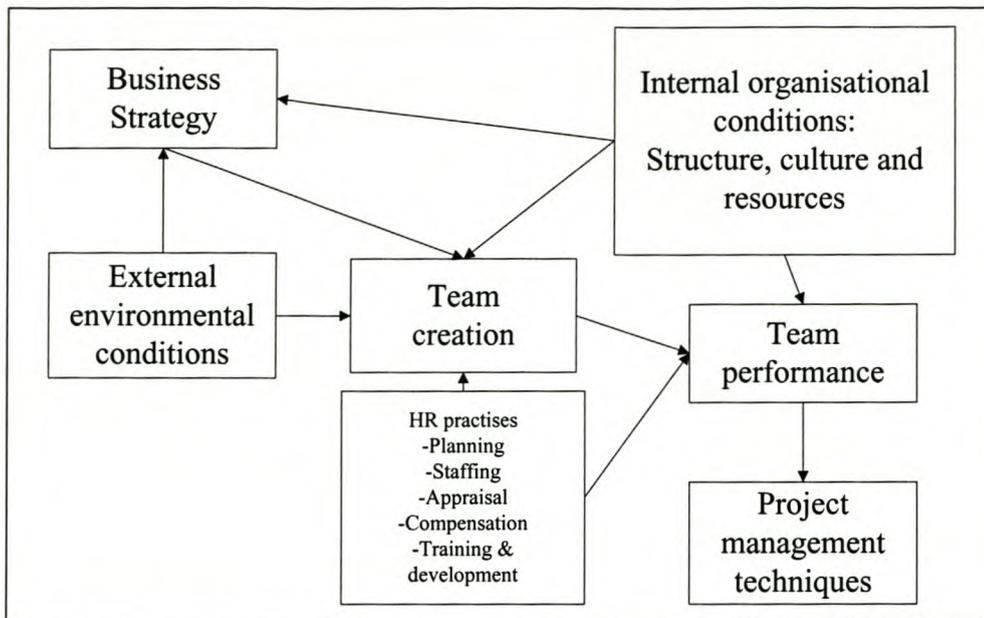


Figure 3.4 Model for team performance

Source: (Slevin and Covin, 1992: 363).

The **internal environment** of an organisation is composed of the organisation's structure, its culture and resources. Each of these factors can affect the project. Teams are an integral and defining part of several structure types, for example, matrix structures. The culture of the organisation can either facilitate or impede the work of the team. The formation of the project team can be a direct outcome of the organisation's strengths, for example, the availability of resources.

Teams can be used to facilitate the **implementation of business strategy**. Teams provide the means by which the tasks demanded by the strategy can be accomplished.

Project team creation is a function of a broad range of **human resource decisions and outcomes**. These include whom the organisation employs, what their competencies are and how motivated the individuals are to work together as a team.

The rationale for the creation of venture teams has been discussed. A project implementation profile was described and the factors affecting team performance were briefly outlined. In the next section the performance of the venture itself will be described.

3.6.3 Venture performance

Intrapreneurial success in large organisations can *inter alia* be indicated by the performance of its ventures among other things. The interaction of the intrapreneur and the venture should therefore be examined.

Venture management may be regarded as a way of isolating venture teams from the rest of the organisation. Their functioning and scope, however, reflect on management practices today. One of the features of functioning is in terms of the entrepreneurial network itself. In large diversified companies, transformation and entrepreneurship work best if championed (Jolly and Kayama, 1990: 260). A further aspect of venture teams is that the venture process is established from the top down. This is particularly true of the guidelines. Even in instances where a great deal of individual freedom is allowed top management still controls the overall process. This aspect is important and will thus be included in the proposed research model.

Herron (1990: 63) produced a new venture performance model by combining the work of Sandberg and Hofer (1987), Szilangyi and Schweiger (1984), Hollenbeck and Whitener (1988), Bandura (1982) and Hambrick (1987). He established that values, self-efficiency and personality traits are among the determinants of the propensity to behave and that behaviour leads to performance within a specific context. This model is shown in Figure 3.5. The NVP

(New Venture Performance) model describes the relationship between the skill propensity of an intrapreneur and new venture performance.

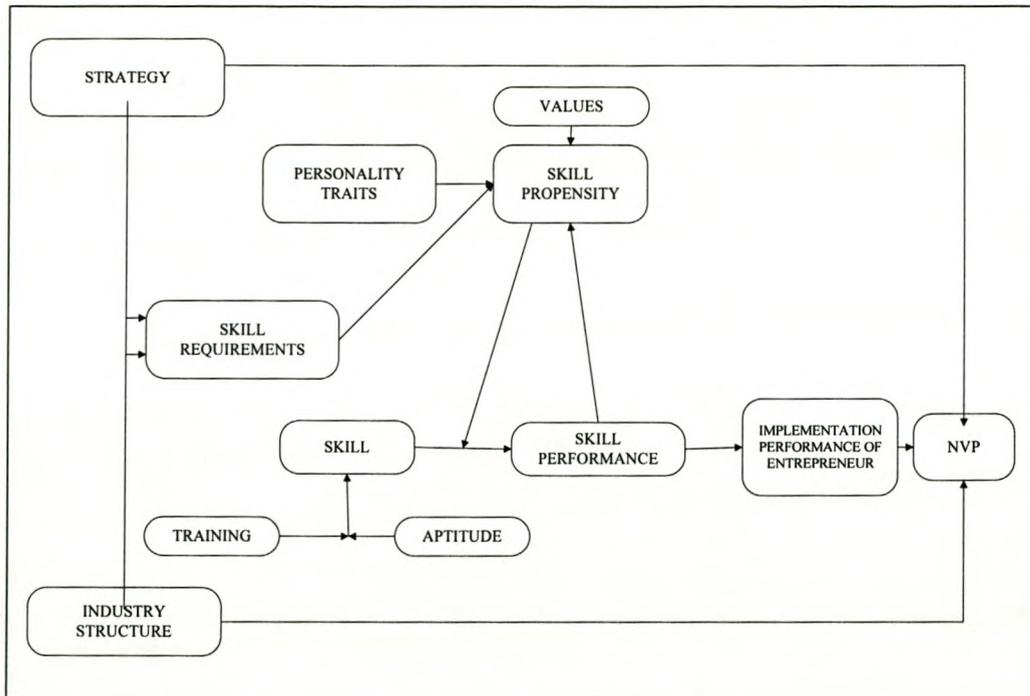


Figure 3.5 New venture performance

Source: Herron (1990: 63)

Herron (1990: 234) found that the characteristics and skills (through training and by aptitude) of the intrapreneur and the interaction of these with organisational strategy and industry structure, would have a significant impact on new venture performance.

3.6.4 Summary

This chapter introduced the concept of intrapreneurship. It defined intrapreneurship and described intrapreneurs and intrapreneurial processes. It also highlighted the characteristics of new ventures and venture teams; and modelled new venture performance.

The next chapter deals with the important aspect of creativity within the entrepreneurial organisation.

CHAPTER 4

CREATIVITY

4.1 Introduction

In the next two chapters, creativity and innovation will be discussed. This chapter discusses creativity and its link to innovation and introduces the concept of serendipity. It briefly explores environments that are conducive to creativity. This chapter will also address the role of motivational factors in terms of their effect on creativity.

4.2 Distinctions between creativity, innovation and entrepreneurship

As noted in the introduction to this research, a distinction is made between creativity and innovation: creativity is the search for and generation of, ideas and opportunities, whereas innovation is the practical application, or result, of the creative process. It is the transformation of ideas into useful applications. This view is supported by Struwig (1991: 79). Albrecht (1987: 15) sees innovation as the process of transforming creativity into profit. Majaro (1992: 7) illustrates this relationship as depicted in Figure 4.1.

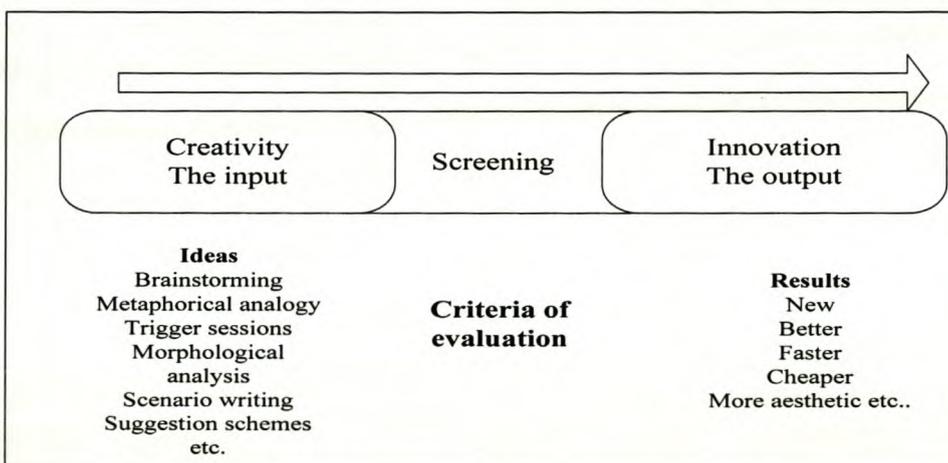


Figure 4.1 The relationship between creativity and innovation.

Source: Majaro (1992: 7)

One of the basic assumptions of this research is that entrepreneurship, creativity and innovation cannot be studied in isolation from one another. Authors such as Kao (1991), Sonnenberg (1991), Alder (1994), Jalan and Kleiner (1995), Gilbert (1989) and Gretz and Drozdeck (1992) confirm this and conclude that there is a real need for creative and innovative people in an organisation. The relationship between creativity, innovation and entrepreneurship as described by Struwig (1991: 84) is illustrated in Figure 4.2.

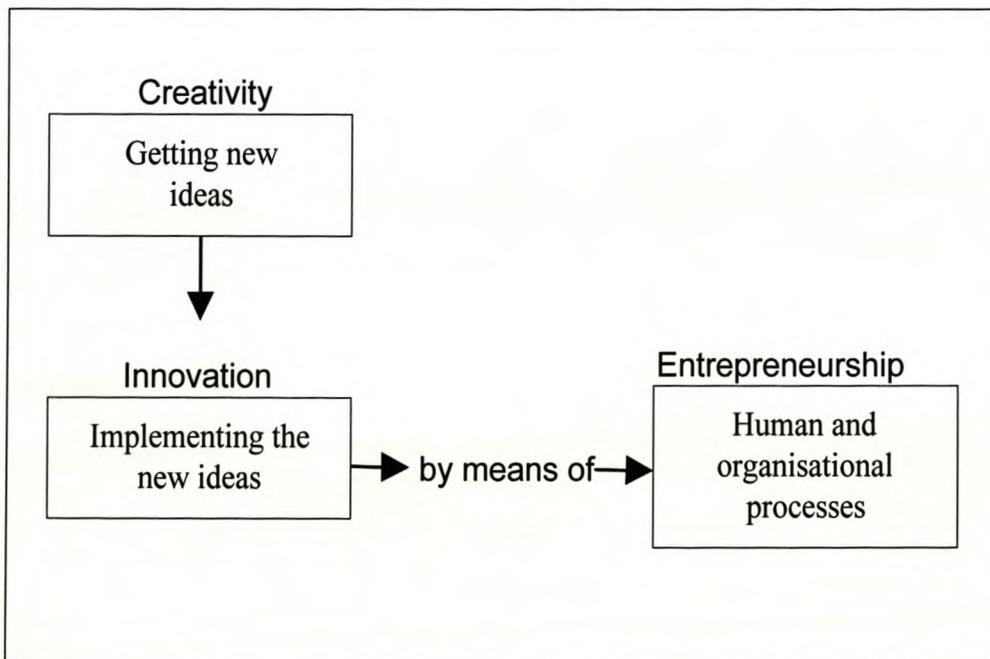


Figure 4.2 Distinctions between innovation, creativity and entrepreneurship

Source: Struwig (1991: 84)

4.3 Understanding creativity

Although highly creative people in various fields of human endeavour have always been recognised, it was not until Galton in 1869 that scientists began to focus on them (Guilford,

1967: 13). Galton initiated studies to determine the hereditary characteristics of creative performance. Psychologists before Galton were more interested in mental events, such as sensation, perception and memory, than in creativity. Schoen and Guilford, two writers in the field of psychology, however, devoted some time and energy to the phenomenon of creativity (Guilford, 1950: 469).

Probably the richest of psychological reference texts dealing with the creative process (in terms of professional and managerial contexts) is by MacKinnon (1978). He stresses the fact that the creative process is not a single unitary process, but rather a label for a complex set of cognitive, motivational and emotional processes that are involved in perceiving, remembering, imagining, appreciating, thinking, planning, deciding and the like. Such processes are found in all persons and not merely in a chosen few, although there might be wide differences in the quality of the processes as well as the degree to which they are applied.

Rickards (1988: 36) uses the following categories to summarise the contribution to the theory of the major schools of thought:

- Psychoanalytic theories
- Associationistic theories
- *Gestalt* theories
- Existential theories
- Interpersonal theories
- Trait theories.

Psychoanalytic theories can be traced back to Freud. A Freudian view of the creative process would refer to creativity as a means of adapting to the hardships of life. This adaptation to the hardships of life would be in the form of 'sublimation' or 'regression' into fantasy. This is a particular regression, which would lead to a new perspective on reality. The components of such a Freudian view of the creative process are the unconscious forces leading to discoveries of psychological importance to the individual. This principle fits in with the components of the creative process (discussed later in this chapter) namely the conscious involvement in the struggle to solve the problem, followed by a period of incubation during which the subconscious mind re-works the problem. Subsequently, the problem emerges at a conscious level with a solution.

Associationists believe that productive thinking is related to the ability to make connections between memory traces. A perception from the outside world triggers a familiar response or association. The creative individual then makes more remote associations because of the routine 'training' of his/her cognitive processes. Mednick (1963: 69) supports this view by suggesting that this skill is more prevalent in creative professions such as architecture and research.

There does not seem to be a satisfactory English equivalent for *Gestalt*, but it has been translated as pattern, shape, configuration, theme or an organised system. Pattern organisation is widely accepted as explaining various perceptual behaviours. Rickards (1988: 37) in his account of the creative process, describes the mechanism whereby understanding is switched from one possible interpretation to another as insight or as a *Gestalt* switch. This switching turns the thinking process about so that previously insignificant elements in the background come into focus and deliver new ideas.

Existentialism is a philosophy that is concerned with humanity's discovery of the meaning of existence. It involves the interaction of man with his environment. An existentialistic view of life therefore would include an awareness of a wider environment and a willingness to be related more closely with it. Many accounts of the act of creation refer to the temporary feeling of 'oneness' with the object being created. This theory of creativity thus proposes that the creative product is not product alone, but is also an experience or encounter.

The **interpersonal** theory is related to the existentialistic theory in that it views the encounter between individuals to be as important as the encounter between an individual and the environment. This theory is based on the human need to form groups and the need to be accepted within a particular group. Individual creativity will therefore be influenced by group norms. In contrast to this, creative acts may be aimed, as attacks, at groups. The outcome of both these behaviours can be innovation or change.

Traits refer to individual differences that remain stable over time. Guilford (1980: 715) describes traits as any distinguishable, relatively enduring way in which one individual differs from another. He identifies creativity within this theory as "the divergent production and transformation of various types of mental products." He also links creativity to convergent or definitional thinking and to the evaluation of possibilities.

4.4 The creative product

The cognitive processes of creativity usually culminate in an end product. Parkinson (1990: 82) describes the properties of this end product as being uniqueness, appropriateness,

transformation and condensation. 'Uniqueness' describes the product as being novel or out of the ordinary, as when a product does not already exist in its particular form. Radical creative products are usually considered as being true innovation. Products may also be unique when no one else is aware of their existence. 'Appropriateness' occurs when a truly creative product leads to a successful innovation. Products are also 'appropriate' when they have social, commercial or other value. The properties of 'novelty' and 'appropriateness' are common to creative products and creativity itself (Amabile *et al.*, 1996: 1186). 'Transformation' involves the creation of new forms or new perspectives that fill a specific market gap. 'Condensation' is the unification of two extremes like simplicity and complexity. It is also the interaction of these two elements that make a creative product lasting.

4.5 Creative individuals

Many studies have been executed in order to determine the cognitive, personality or biographical characteristics of creative individuals. Generally, people have been found to be creative within a particular domain, whether scientific or other. Individuals furthermore seem to use knowledge gained within that specific domain to create new ideas. An engineer, for example, within an engineering environment using project management methodology, is more likely to generate creative ideas about systems and structure than one within an environment using less innovative methods of management. The domain allows them to create new ideas, to be alert to novelty and to find the 'gaps' in domain knowledge. Parkinson (1990: 87) groups the cognitive characteristics shared by creative people into traits, abilities and processing styles. In respect of traits, four are mentioned frequently. They are general intelligence, originality, verbal fluency and imagination. Table 4.1 identifies the cognitive abilities or characteristics of highly creative individuals.

Table 4.1 Cognitive characteristics of the creative individual

1	Originality
2	Articulate and verbally fluent
3	General intelligence
4	Good imagination – rich fantasy life
5	Creative in particular domain
6	Thinks metaphorically
7	Uses wide categories and images
8	Flexible and skilled decision-maker
9	Makes independent judgements
10	Copes well with novelties
11	Thinks logically
12	Escapes perceptual sets and entrenchments
13	Builds new ‘structures’
14	Finds order in chaos
15	Asks “Why?”
16	Questions norms and assumptions
17	Alert to novelty and gaps in knowledge
18	Uses existing knowledge as a base for new ideas
19	Creates individual visualisation
20	Prefers non-verbal communication
21	Tolerant of ambiguity
22	Likes solving problems
23	Can consider a number of ideas simultaneously
24	More concerned with meanings and implications than with detail

Source: Parkinson (1990: 88)

Creative individuals differ from others in the manner in which they approach problem solving. Table 4.1 emphasises this point. They would, for example, prefer wide categories and images, they would also question norms and others’ assumptions. Similarly, they would prefer non-verbal communication and would concentrate on meanings and implications rather than be involved in detail.

Among the cognitive characteristics of creative individuals is one that that seems to be more prevalent than others – that of recognising potential in a particular field. The creative

individual applies to this the necessary resources in order to solve the problem (resulting in ‘potential’) and, in so doing, isolates this ‘potential’ from others that could possibly be distracting. This ability amounts to a specific judgement that could be related to a combination of characteristics.

Personality and motivational characteristics seem to be in conflict with one another and are loosely defined. In Table 4.2, for example, the need of creative people to be recognised and thus draw attention to themselves, seems to stand in contrast to the tendency to avoid interpersonal contact. This apparent conflict is furthermore illustrated by a personality that values discipline, hard work and perseverance on the one hand, but also appreciates the freedom of spirit, on the other hand.

The personality and motivational characteristics can be depicted by two broad groupings: organised and hardworking, but with an open and non-judgemental mind for new things.

Table 4.2 Personality characteristics of the creative individual

1	Willing to confront hostility and take intellectual risks
2	Perseverance
3	Curiosity and inquisitiveness
4	Open to new experiences
5	A driving absorption (‘obsessive’)
6	Discipline and commitment to work
7	High intrinsic motivation
8	Task focussed
9	Freedom of spirit, (rejects imposed limits)
10	High degree of self-organisation
11	Sets own rules
12	Withdrawn, reflective and internally occupied
13	Has impact on those around him/her
14	Broad range of interests
15	Plays with ideas. (Especially original ideas)
16	Values originality and creativity
17	Unconventional in behaviour

18	Experiences deep emotions
19	Opportunistic
20	High ego strength
21	High personal dominance
22	Conflict between self-criticism and self-confidence
23	Accepts own impulsive discoveries

Source: Adapted from Maas (1996: 49) and Parkinson (1990: 92)

In conclusion, it can be said that the creative individual seems to have a number of cognitive, motivational and personality characteristics. There are apparent contradictions and possible conflicts within these characteristics, but they constitute the profile of an individualistic and creative person with an intense desire to solve problems and deliver something new.

4.6 The creative processes

Joseph Schumpeter, who is often hailed as the father of modern entrepreneurial thought, held strong views on the particular qualities of an entrepreneur. He regarded the entrepreneur as an 'ideas person' and an individual of action, with the ability to inspire others and as one who does not accept the boundaries of structured situations (Vosloo, 1994). It is, however, important to recognise that although there might be a natural ability, 'creativity' can also be taught. Gretz and Drozdeck (1992: 12) proposed that virtually everybody is creative to some extent, and that this natural ability can therefore be developed. Edward de Bono has also demonstrated that creativity is not just a natural talent, but a skill that everyone can develop (Bennet, 2000: 1). Not everybody will become a great inventor, but everybody can learn to see opportunity beckoning.

Robert and Weiss (1988: 13) view the innovation (creative) process within an organisation as a practical search for and prudent assessment of, opportunities. They separate the creative

process into four basic steps, namely, origin, assessment, development and implementation. The question remains, “Where do opportunities originate?” Opportunity search is the organised examination of change to extract opportunities. The purpose of opportunity assessment is to separate high-potential opportunities from others by providing pragmatics: the basic criteria to evaluate the potential of each opportunity. Opportunity development is the refinement of the choice of opportunities through risk identification and containment. Opportunity pursuit is the beginning of the implementation process.

4.7 A model for creativity

Cornwall and Perlman (1990: 81) propose that Albrecht’s model of the creative processes be used as definitive. It defines five steps in the process of creativity/innovation and is illustrated in Figure 4.3.

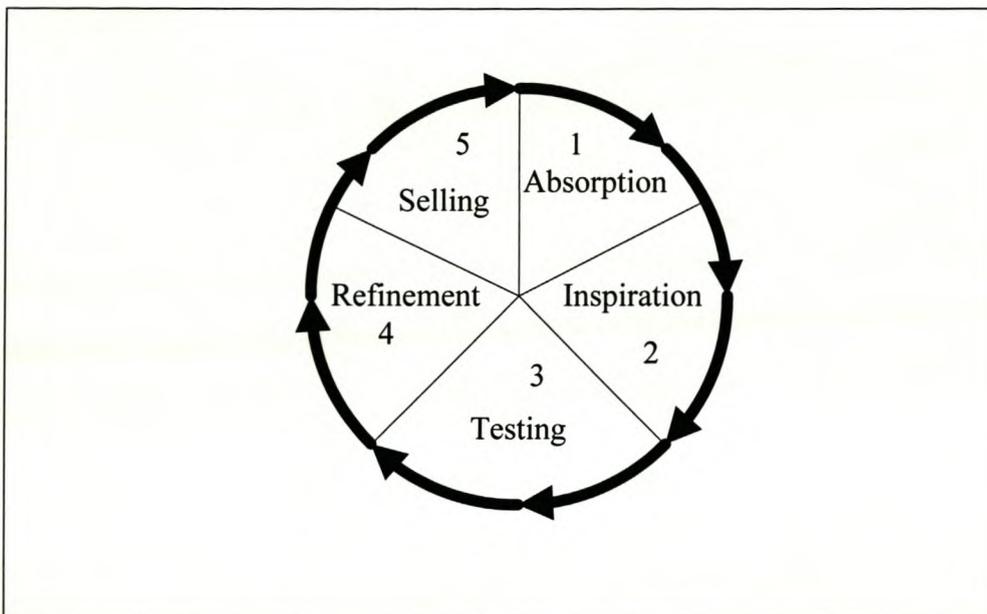


Figure 4.3 The processes of creativity and innovation

Source: Albrecht (in Cornwall and Perlman, 1990: 81)

Absorption is the process of tuning into the outside environment and absorbing information. It is paying attention to the surroundings. The raw material for the creative mind to work from is provided by the outside world.

Inspiration is a semi-passive brain event (Section 4.8 on serendipity elaborates on the process). It is the collation of bits of information that form a pattern.

Once an idea has been generated, it must be **tested** for value. **Refinement** is the removal of rough edges. Even if ideas are reasonably feasible, they may still require considerable modification and refinement.

Selling is the final phase and requires that someone is willing to exchange funds for the product.

Albrecht's model can also be related to the 'Simplex Model' of Wilson (1997: 161), which reduces the creative and innovation processes to the three basic steps of problem finding, solution finding and implementation. An added element in Wilson's model, which is not adequately covered by Albrecht's model, is that of convergence and divergence. Wilson proposes that any judgement or discussion will reduce the influx of ideas or proposals – the principle of convergence. Divergence occurs when further ideas follow the formulation of a new idea. The ideas embedded in Rickards's 'diverge – converse couple' (1988: 27) support Wilson's model. He describes creativity, particularly during problem solving, as a series of 'opening up and closing down sequences'. Opening up involves postponing judgement, using techniques to challenge mindsets and accumulating a range of possibilities. Closing down involves selection, focusing and development.

Figure 4.4 (Pinchot, 1985: 19) elaborates further on creativity leading to innovation.

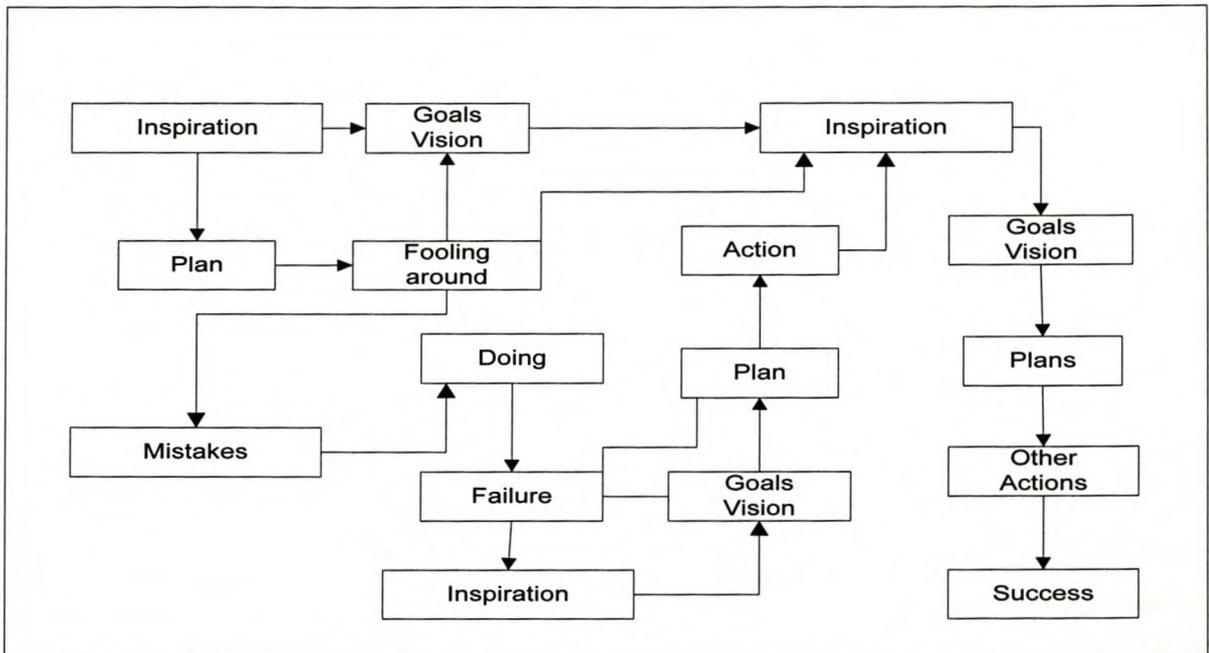


Figure 4.4 How creativity and innovation actually work

Source: (Pinchot, 1985: 19)

This model has been adapted from the traditional sequential model of training. Goals are set, then planning takes place, which in turn results in action. Variations of the process feed back to change planning and adjust the actions. Innovations rarely proceed smoothly from the definition of goals to the subsequent actions because it is not possible to plan accurately for something that is completely new. The model describes the process as ‘inching’ towards a vision.

4.8 Serendipity

In previous chapters, entrepreneurship and intrapreneurship were explored and the conclusion was drawn that everyone can acquire entrepreneurial talent (Block and MacMillan, 1993: 4).

It was also determined that the entrepreneurship process is one of hard work, which seemed to allow no role for the phenomenon of luck. The question of the role of luck in human discovery and entrepreneurship can now be asked. In contrast, one could say that if effort alone was required for entrepreneurial ventures to succeed, then researching, understanding and applying the lessons of entrepreneurship would be indeed simple.

It is recognised that one can learn to play the piano or guitar by sheer effort. One can learn to play well, but the fact remains that not everyone will become a great pianist like Beethoven or a guitarist like Goya. This literature study prompts one to seek an understanding of the unique gift of 'discovery' as displayed by the individual intrapreneur or entrepreneur that seems to produce one discovery after the other. The entrepreneurial nuance of serendipity offers answers to this question.

The Oxford dictionary defines serendipity as "the faculty of making happy and unexpected discoveries by accident", as in the utilisation of a failed adhesive to keep paper markers in a church hymnal – the origin of the Post-it notes (Fry, 1987). In its modern application, it usually refers to good luck that comes by accident. Martello (1994: 240) quotes Walpole's definition of serendipity as "a quality – a gift for discovering things". From what has been said, it seems clear that serendipity encompasses elements of chance in its nature – discovery and coincidence play key roles in its realisation. It is this *zeitgeist* nature (the spirit of the time – or how genius manifests in a socio-cultural system as a whole) that makes serendipity difficult to understand (Martello, 1994: 255).

The literature proposes three separate elements as crucial factors in the attainment of serendipity. Martello (1994:243) visualises this in the model illustrated in Figure 4.5.

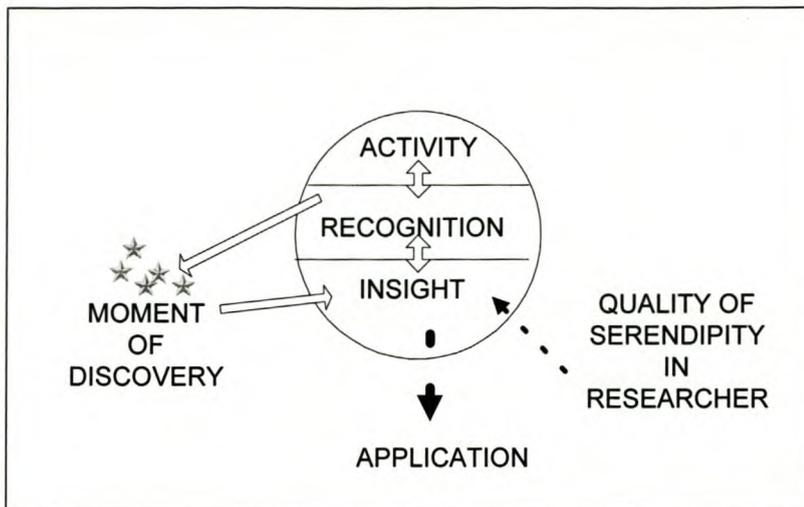


Figure 4.5 Serendipity

Source: Martello (1994: 243)

Action sets the stage for the possible revelation of serendipitous knowledge; **recognition** allows one to see and not overlook and **insight** is the ‘light bulb’ overhead – the flash of understanding where knowledge meets application. Activity is the basis of serendipity.

Applied in the arena of entrepreneurship, it means that focused activity will lead to the proper climate for discovery. While busy operating, the entrepreneur needs to recognise the moment of discovery. How many new products or businesses lead a person to ask why he or she did not think of that? This question should not concentrate on the activity of producing the thoughts, but rather on the recognition of the ‘discovery’ – it was there all the time, I just did not recognise it as such. What happens to the discovery, once the moment of discovery has arrived and has been recognised as such by the attuned observer? The inability to transform the elements of discovery into serendipity usually stems from the failure of entrepreneurs to bring insight to their findings. Insight transforms the recognised discovery from pure knowledge to applied knowledge.

There are many tools at the disposal of the entrepreneur. Serendipity is yet another element in the furtherance of the creativity and innovation of the entrepreneur. As a union of activity, recognition and insight, serendipity offers a process for both seeing and seizing the moment – qualities essential for successful entrepreneurship (Martello, 1994: 250).

4.9 Environments conducive to creativity

This section of Chapter Four will briefly define creative environments and the factors that prohibit creativity. Chapter Six will supplement this by detailing entrepreneurial environments.

Gretz and Drozdeck (1992) suggest that the failure to establish a creative environment on a company-wide basis will lead to its failure. In order to establish such an environment, Majaro (1992: 24) proposes that organisations ensure that three main characteristics be implemented: a climate for creative thinking, an effective system at all levels for communicating ideas and procedures for managing creativity and innovation.

The establishment of an environment that is conducive to creativity should moreover operate at three levels, namely the organisational level, the departmental level (or operational unit) and the individual level. However, one should take cognisance of the fact that creativity can be impeded. Majaro (1992: 24), Rickards (1988: 17) and Cornwall and Perlman (1990: 15) identify the following impediments to creativity in organisations:

A dysfunctional bureaucracy with rigid communication systems. This would include poor lateral communication and the over-usage of formal communication.

Climate and culture. A poor climate for creativity would be one that leads people to avoid risks, be over critical of new ideas and resist attempts to introduce changes. It includes a ‘stifled mind set’ culture. A creative climate would be one where people trust one another enough to take the psychological risks of being open and revealing their deeper needs and fears.

Organisational politics and infighting. This reduces people’s willingness for open and frank discussions and the exchange of ideas. Openness is an important element, especially for group discussions.

A lack of organisational ‘slack’. This pertains to the extent to which a manager allows an employee to be creative and to ‘think’. Sonnenberg (1991) expounds on ‘slack’ and defines various elements of management styles that inhibit creativity, namely poor communication, dictatorships, unrealistic timing, operational style, formalities and protocol and discouragement of new ideas. The organisational culture and organisational systems, especially the reward and compensation systems, can effectively halt the creative process.

Balance between thinking and doing. This results in optimum productivity.

Organisational structures. According to Majaro “structure’ refers to three structures – the macropyramid structure, umbrella structure and international conglomerate. The macropyramid structure refers to organisations that have opted for a centralised approach to management. In this structure, creativity is restricted by the remoteness of management. People in the central hub also resist ideas originating from other parts of the organisation. As a result of these two factors, the generation of ideas gradually subsides as attitudes become

negative. The umbrella structure recognises local and semi-autonomous management styles. In this structure, one finds creativity to exist in specific operating units. Some will be more creative than others, depending on individual management styles. Communication across units is sometimes a problem and ideas are not cross-fertilised. The international conglomerate encompasses a number of diverse activities with little synergy between them. The massive structure of conglomerates impedes the generation of creativity. Managers in these structures are more likely to be managed on the basis of net margins than on their overall contribution to the success of the organisation.

Imported talent. This refers to the notion that creativity and innovation can only happen in an organisation when creative talent is imported from outside the organisation.

Excessive accounting control. This refers to serious levels of financial control.

All these elements can be summarised in terms of the structure, internal processes, culture and the management styles of the organisation. They will either positively encourage creativity or inhibit it (Drucker, 1993: 143).

The history of the great American railroads is well documented in management literature. In a recent study of the American railroad industry, Barr, Stimpert and Huff (1992) explore the principles of cognitive change, strategic action and organisational renewal. Based on their work, it is possible to recognise that the renewal or change of an organisation rests on two main factors, namely changing the mental model of top management and the organisational environment. It is accepted that changes do not occur organisation-wide immediately, but that 'pockets' of change will ultimately lead to change in the whole organisation. However,

without the support and change of top management, little change is possible. Gretz and Drozdeck (1992: 36) declare that the culture produced by top management will ultimately determine the level of creativity and innovation that can be achieved in an organisation. A model proposed by Barr *et al.* (1992: 18) can easily be applied to the implementation of creative environments. This model is diagrammatically illustrated in Figure 4.6.

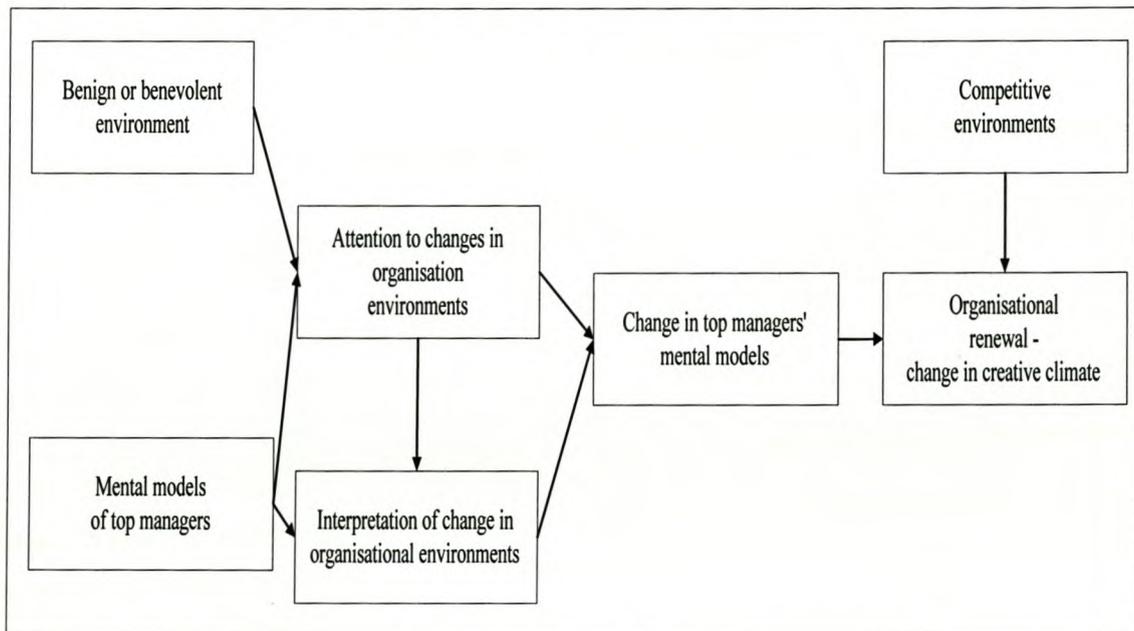


Figure 4.6 A cognitive model for organisational renewal.

Source: Barr *et al.* (1992: 18)

It is therefore concluded that change in the paradigms of top management should culminate in the following changes:

- policies and procedures
- the fostering of an innovative management attitude
- a change of organisational culture.

The effects of top management on changing paradigms are discussed further in Section 5.6

4.10 Conclusion

In the introduction to the study in Chapter One, the need for corporate entrepreneurship was established. This chapter and the previous chapters have belaboured the point that corporate entrepreneurship cannot be distanced from creativity and innovation. The need for the change to a creative climate will be spurred on by the need for survival and growth – a need prompted by the external environment that the organisation operates in. This change or transformation of the organisation into one that fosters creativity can be based on the principles that have already been established as well as those that are discussed in Chapter Five and Chapter Six.

This chapter has explored creativity in terms of its nature and relationship to the organisation. In the following chapter, the results of applied creativity, namely innovation, will be examined.

CHAPTER 5

INNOVATION AND INNOVATORS

5.1 Introduction

In exploring the terms entrepreneur and intrapreneur in previous chapters, it has become clear that creativity, innovation and intrapreneurship are inseparable. Kolchin and Hyclak (1987:15) proposed that an intrapreneur engage in innovation in an organisation. The fact that innovation is the logical outflow or manifestation of creativity has been established.

In this chapter, the definition of innovation and the management of innovation within an organisation will be explored. The successful implementation of innovation will also be described.

5.2 Innovation defined and categorised

Innovation can be defined as the successful implementation of creative ideas within an organisation (Higgins, 1995: 112). Parkinson (1990: 81) views innovations as a process of developing new or improved products or services; in its most extreme form it is the source of discontinuous change in a market. This view holds that creativity by individuals and teams is a starting point for innovation (Amabile *et al.*, 1996: 1155). Peters (1987: 60) believes that innovation is a complex process that originates with an idea or some form of analysis and progresses through various stages to conclude with action or implementation. Peter Drucker maintains that entrepreneurs cannot be described through common personality traits, but

rather in terms of their commitment to the systematic practice of innovation. He sees innovation in terms of hard work and discipline rather than sheer genius (Vosloo, 1994: 10).

According to Higgins (1995:116), Peter Drucker believes that organisations have reorganised in such a way that work is done simultaneously at three levels of innovation. At the lowest level, they seek incremental improvements in existing products. At the intermediate level, they execute a significant jump in product design and capabilities. At the highest level, the teams seek to continue with major leaps in product design and capability.

Higgins (1995: 112) categorises innovation into four broad primary types, namely product innovation, process innovation, marketing innovation and management innovation. Product innovation is a new product or service or the enhancement of an existing product. A process innovation is a new or improved process, which increases effectiveness and efficiency. Marketing innovation is a new or improved approach to promotion, price, distribution and target market activities. Management innovation is an approved method of managing, for example, re-engineering.

Kolchin and Hyclak (1987: 15), however, extend the categorisation into six defined types: the innovation of a new product or service, the implementation of a system or resource, the introduction of a new system that increases productivity, the opening of a new market, the conquest of a new source of materials or methodologies and finally the creation of a new organisation.

Damanpour (1996: 698) adds to the characteristics already mentioned a view of innovation that is based on its different dimensions. The first distinction made is between **administrative**

and **technical innovations**. This is an important distinction because it differentiates between social and technical systems within organisations. Administrative innovations pertain to the organisational structures, administrative processes and human resources. Technical innovations pertain to products, services and the technology used to render products and services.

The next distinction is between **products and processes**. Product innovations refer to the introduction of new products or services to meet the demands of the organisation's markets. Process innovations refer to the introduction of new elements into the organisation's processes.

Radical and incremental innovation is also used to describe the main types of innovation. The adoption of innovation changes both the structure and the processes of an organisation. However, the magnitude is not equal for all organisations. Radical innovations are those innovations that produce fundamental changes in an organisation and represent a radical departure from existing practices or products. Incremental innovations, however, result in a lesser degree of departure from existing practices.

In conclusion, it can be said that innovation is based on idea generation and opportunity recognition – the idea being either a creatively driven innovation or an improvement.

Having explored the definitions of innovation, as well as different methods of describing and categorising innovation, it is necessary to identify the individuals who innovate in organisations.

5.3 Who are innovators?

Manimala (1996: 179) identifies six types of high-innovation entrepreneurs:

Inventor/tinkerer. The inventor/tinkerer is a person with the ability to manipulate materials. They tinker with things and invent new products or improve existing products.

Adventurer. The adventurer is a person who ventures into a business and achieves success under circumstances which appear to normal people as highly unfavourable for business.

Searcher/problem solver. Searchers/problem solvers are people who get into business as the solution to their own personal problems or some problem vexing their particular community.

Gap-filler. Gap-fillers spot large gaps in the economy and devise ways of filling them through innovative business ventures.

Social visionary. Social visionaries are similar to the community problem solver already discussed and also promote a business venture as an answer to the problem. However, there is a difference between the two. While the problem solver seeks a solution to an existing problem in the community, the social visionary seeks solutions to anticipated problems of the community, or even the country at large.

Opportunity grabber. Opportunity grabbers are people who in the early part of their lives never think of business as a serious career option. However, when circumstances change in later life and opportunities for business emerge, the innovative ones in particular, are quick to respond and succeed in building innovative ventures.

Specialist pioneer. A specialist pioneer can be either a trained or an untrained specialist. The trained specialist is highly educated and is a specialist in a particular field.

Nicholson (1998: 7), in describing 3M's recruiting brochure, lists six traits of innovators (used in the recruitment of scientists) namely: creative, broad interests, strong motivation, resourcefulness, diligence and problem solving.

5.4 Why innovate?

In the introduction to this research, the turbulent environment that businesses must compete in was described. The business environment demands dynamic responses from organisations if they wish to survive the changing environment. These circumstances do not demand subtle adjustments or 'fine tuning' of systems but radical changes in order to survive. To compete in this ever-changing environment, companies must constantly create new products, services and processes in order to dominate. They must adopt innovation as a way of corporate life.

Pearson (1989: 90) sees innovation as the key to the survival of an organisation in highly turbulent times. He regards innovation not as just creating the new, but also as replacing the existing. Innovations require changes in the pattern of resource deployment and the creation of new capabilities, thereby adding new possibilities for strategic positioning in markets (Stopford and Baden-Fuller, 1994: 522).

According to the widely accepted research of Porter and Hall in particular (Higgins, 1995:113), businesses compete strategically, on the basis of two primary factors: the relative differentiation of a firm's products or services from those of the competition and/or the

relative low cost position of its products or services, compared to those of its competition. In order to achieve relative differentiation and/or relative low costs, organisations must innovate. Product innovation and marketing innovation lead principally to a differentiated competitive advantage. Process innovation and management innovation lead principally to a relatively low cost advantage. (Some product innovations may lead to low-cost advantages as well while some processing innovations may lead to a relative differentiation advantage).

The rationale for innovation can thus be summarised by Nicholson's statement (1998: 1) when he describes the culture at the 3M company: "Innovation is not only a growth issue at 3M, but a survival issue."

5.5 Barriers to and facilitators of innovation

Pearson (1989: 91) identifies two clusters of factors that will influence a firm's ability to innovate, namely, organisational style and strategic orientation. Under organisational style, he groups management philosophy, leadership style, motivational factors, participation and internal communication. Under the cluster of strategic orientation, he identifies generic strategy, functional orientation, long-term vision, external connections and corporate integrity. Pearson's reasoning is supported by Walton (1987: 27), who confirms the effects of environmental trends and meta-competence on the strategic orientation of an organisation and its subsequent development and diffusion of innovations. Figure 5.1 depicts the effects of strategic orientation and organisational style on innovation.

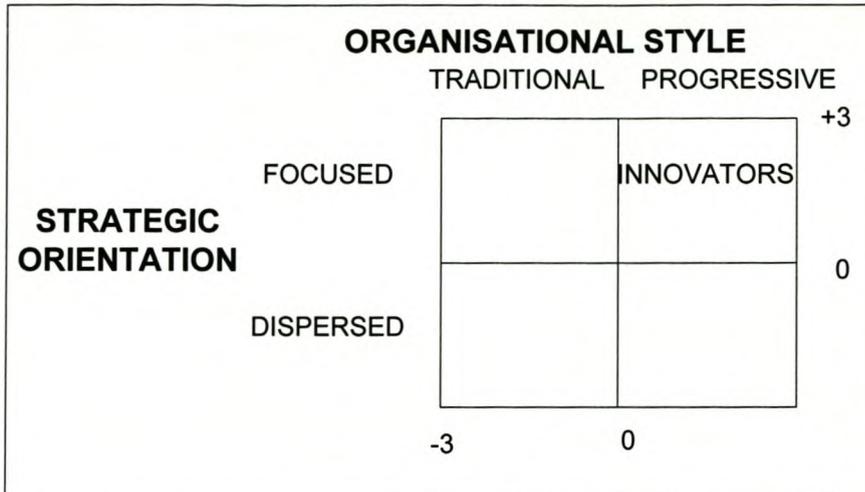


Figure 5.1 Style and orientation model

Source: Kurato *et al.*, 1993: 32

J. B Quinn notes that the following characteristics are present in large corporations that are successful innovators: atmosphere and vision, orientation to the market, small flat organisational structures, multiple approaches, interactive learning and a 'skunkworks' (a highly innovative enterprise group that functions outside traditional lines of authority) (Kurato *et al.*, 1993: 32).

Studies of large firms seem to reflect no correlation between size and innovativeness. Research evidence certainly indicates that size alone neither helps nor hinders innovation. It seems much more likely that it is the various other aspects of organisations, which are concomitant with size, such as organisation structure and corporate culture (Pearson, 1987: 88).

In the literature examined, a central theme of management's influence on intrapreneurship and its components has crystallised. The interaction of innovation with entrepreneurial freedom or autonomy within the constraints of management is illustrated in Figure 5.2 adapted from Vedin (1980: 73).

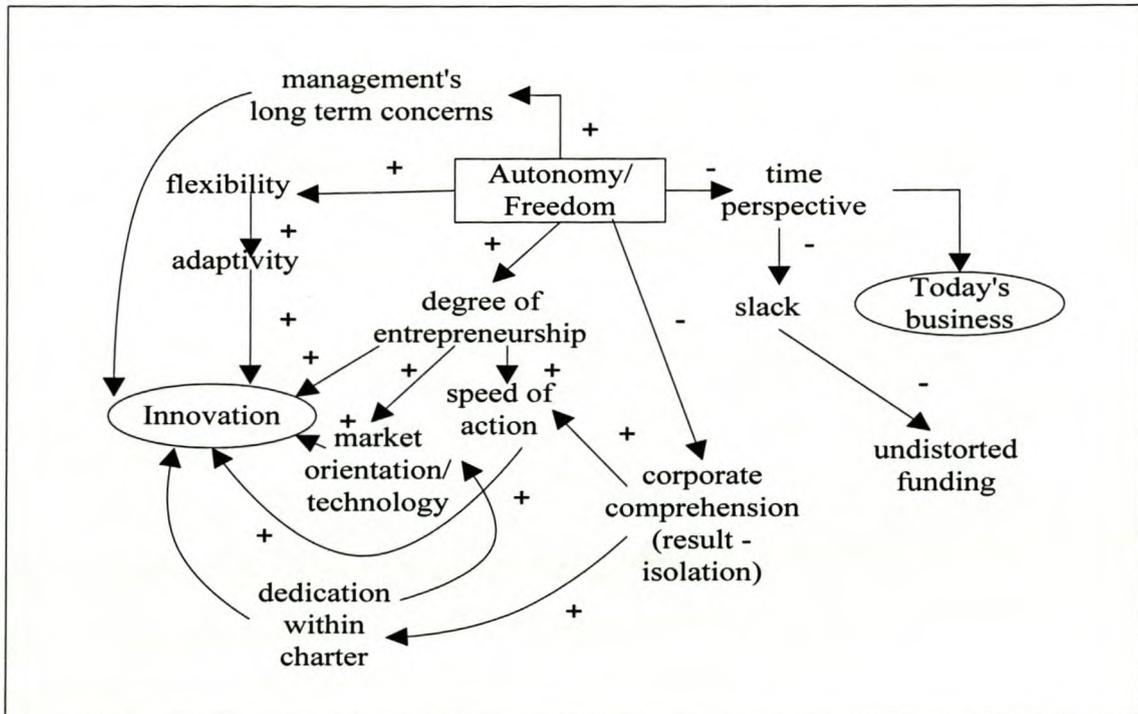


Figure 5.2 Autonomy and innovation

Source: Vedin (1980: 73)

In this figure, autonomy or freedom is sketched (+ or -) as being both threatening and conducive to innovation. Since the figure concerns itself with innovation, several arrows can be found leading towards 'innovation'. Market orientation or technology drives the need for innovation. Innovation is the outcome of the degree of entrepreneurship, which in turn is delineated by freedom and autonomy. The concerns of management have profound influence on innovation. The views of Vedin are supported by Reilly and DiAngelo (1987: 29), who found among six conditions that could be correlated with entrepreneurship and the success of

new product development efforts that the most significant was the results of management's style and orientation and the subsequent allocation of formal licence to entrepreneurs.

5.6 The implementation of innovation

Today's strategies for innovation are only recognised as effective if there are concrete performance goals against which to measure progress (Kurato *et al.*, 1993: 32). Paper and Johnson (1997: 20) state that empowerment, innovation and organisational memory are all constructs that can be linked. According to their view, one of the major edicts of empowerment is delegation of decision-making authority to lower-level employees. Decreased control authority allows employees more freedom to be creative. However, if creative thought is generated but not captured, innovative ideas may be lost. Organisational memory can capture creative ideas as they are generated, so that empowered teams can draw upon positive, creative experiences. This is illustrated in Figure 5.3 adapted from Paper and Johnson (1997: 29).

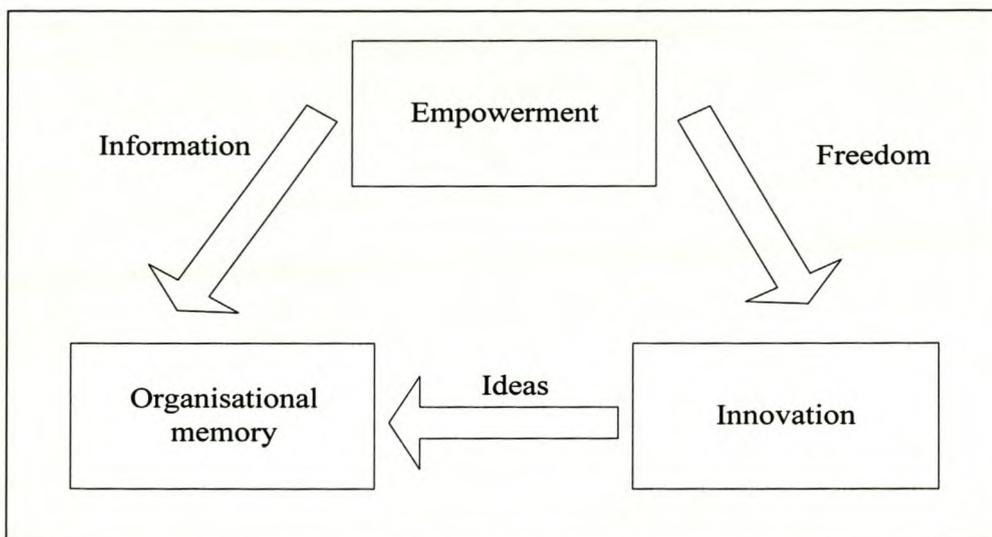


Figure 5.3 A theoretical model linking innovation, empowerment and organisational memory

Source: Adapted from Paper and Johnson (1997: 29)

In this theoretical framework, the linkages between empowerment, innovation and organisational memory are illustrated. The intrinsic task motivation is promoted when individuals perceive that they are in control of the task engagements. Retained control of task engagements mean that employees are free to complete the task that they choose. Since freedom nurtures deep involvement in task engagements, it is critical to innovation.

Innovation can be inhibited by fear of failure and by organisational obstacles such as narrow job categories, organisational structure and non-supportive managers. The linkage between empowerment and creativity is therefore facilitated by authority (where appropriate) involving employees in decision-making activities, alleviating the fear of failure by nurturing/coaching, removing real or perceived obstacles and allowing workers freedom to complete their assigned tasks. It emerged that empowerment leads to greater creativity, and thus innovation, when management creates an environment conducive to change.

They found, in addition to this, that information exchange leads to continuous organisational learning, which leads to the second element of their model. Based on this fact and the researcher's previous work on productivity (Goosen, 1993), an element of the proposed systems model of intrapreneurship is formed: a culture with embedded systems that promote the exchange of information will promote intrapreneurship.

Paper and Johnson (1997: 29) also found that an empowered environment calls for structural integration of teams and management structures. Cross-functional teams can facilitate communication if information sharing is properly organised. However, these teams should be structured to allow the generation of ideas as a group with consensus decision-making as well as the sharing of ideas and expertise. The third element of their model is the empowerment of

cross-functional teams that can facilitate the ability of an organisation to record critical events in memory databases.

The requirements for successful innovation are the development and articulation of specific strategies in order to encourage innovative activity. This is done by creating a receptive organisational climate, ensuring that creative ideas are produced, identifying an innovation champion, installing a proper evaluation system and managerial control.

The element binding together all the fundamentals described above, and one of the cornerstones of the study, management, must lastly be highlighted. It is difficult to create environments, employee interaction conducive to innovation, and systems such as communication systems, without decisive leadership because of the complexity and multi-dimensionality of organisations. It is therefore necessary to take cognisance of the effects of leadership, and specifically transformational leadership on the creation of innovation within organisations in changing environments. Heifetz and Laurie (1997: 124) stress the challenge of management to mobilise staff within constantly changing environments, which require transformational management. Transformational leadership is differentiated here with transactional and charismatic leadership in that transformational leadership is more dependant on the leader's view of him/ herself as transformational and less on the organisational context (Popper and Zakkai, 1994: 7). Transformational leadership also differs with transactional leadership in that employees are motivated to perform (and innovate) beyond expectations (Sarros and Santora, 2001: 392). According to Limerick et al. (1994: 35) the results of transformational leadership applicable to the creation of innovation are:

- A bias for reflection-in-action.
- Forming of learning alliances.

- Development of networks.
- Multiple reward systems.
- Creation of meaningful information.
- Individual empowerment.

5.7 Summary

Entrepreneurship and intrapreneurship, creativity and its outflow, as well as innovation have been examined in Chapter Two to Chapter Five. The next chapter will focus on the systems and environments in which entrepreneurship is found – the entrepreneurial organisation.

CHAPTER 6

ENTREPRENEURIAL ORGANISATIONS - ENTREPRENEURIAL SYSTEMS AND ENVIRONMENTS

6.1 Introduction

The concepts of entrepreneurship and intrapreneurship were introduced in Chapters Two and Three. In Chapters Four to Five specific elements of creativity and innovation and their inter-linking were described. In both these chapters, the researcher briefly explored the literature for environments that will facilitate creativity and innovation. Chapter Six details the elements of systems and environments, as this will form a crucial element in the final creation of the intrapreneurial systems model. The chapter investigates organisational structures and cultures that promote entrepreneurship and it further identifies the typical behaviour of entrepreneurial organisations. This chapter also refers to the typical views of industrial engineering of enterprise and entrepreneurship in that it concentrates on the design aspects of the environment for enterprise architectures.

6.2 The entrepreneurial organisation

6.2.1 Entrepreneurial structures

Organisational structure is the design of an organisation. It is the formal pattern according to which people and jobs are grouped. Business processes take place within organisations' structure. Cornwall and Perlman (1990: 106) hold that structures and communication are the binding factors that hold organisations together. Policies, practices and measurements make intrapreneurship and innovation possible (Drucker, 1993: 148). Once an organisation has

decided on the core elements of its strategy, it should build structures that will support that strategy. Tropman and Morningstar (1989: 157) are emphatic that if this strategy includes innovation, then the organisation must create a structure that will support entrepreneurship. Ironically, this fact is well understood but not easily executed in existing organisations. The organisation has to devise relationships that centre on intrapreneurship. It has to make sure that its rewards and incentives, its compensation, personnel decisions and policies all reward the appropriate entrepreneurial behaviour.

In the comparison between entrepreneurial organisations and traditional organisations, the bureaucratic structure comes to mind. Power and decision-making are usually centralised at the top in a bureaucracy. Bureaucracies are moreover characterised by excessive rules and procedures that restrict originality and freedom. Systems are mechanistic at their core. Cornwall and Perlman (1990: 107) propose, in stark contrast to this, that the entrepreneurial organisation be structured for empowerment by low centralisation, low formalisation and smallness. Self-managed teams should replace the bureaucratic functional unit and jobs should steer away from high levels of specialisation. Essentially, the entrepreneurial structure should enhance co-operation and allow freedom that will facilitate innovation. Cornwall and Perlman (1990: 111) sound a warning that will form one of the keystones of this research (as described in Chapter Seven, section 7.4.2, Objective Two). They state that empowerment and delegation must not be equated with anarchy, and that entrepreneurial structures must be controlled.

One of the examples of entrepreneurial structures was proposed by Tropman and Morningstar (1989: 119). They state that in the design of structures, a balance should be struck between complexity and elegance. Their design can be described as an organisational sphere or

gyroscope. A model depicting this is illustrated in Figure 6.1. In this model, the three key organisational structures are embedded namely: the macrostructure, the mesostructure and the microstructure.

This model describes the interaction and influences between different organisational layers/groups as 'orbits'. – much like planets in a solar system. **Macrostructure** refers to the extra-organisational environment. **Mesostructure** refers to the organogram of the organisation, which incorporates the following elements: fewer levels, the encouragement of idea generation, a climate for creativity, special areas for idea testing and challenging and the use of entrepreneurial champions. **Microstructure** refers to the specific places where actual work is done. During the structuring of organisations, attention to the daily workplace of employees, the offices, meeting rooms or the like, are scant. This is unfortunate, because it is sometimes difficult to flatten huge organisational structures. However, it is possible to achieve a 'flattening' effect where work actually happens. Here, status differentials can be reduced, power relations can be eased (for example, as found in meetings) and communication channels opened. It is even possible to change elements of the culture of an organisation, for example, the rigid formality (as sometimes found with rank) can be changed to open up communication channels.

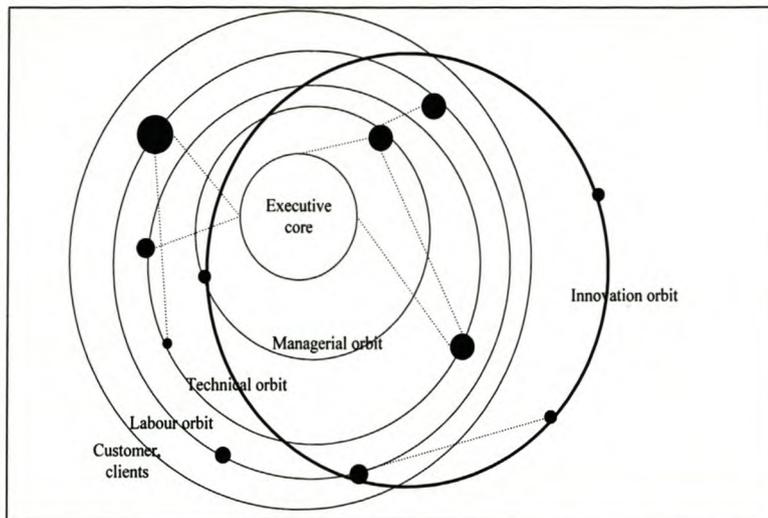


Figure 6.1 The organisational sphere

Source: Morningstar (1989: 119)

Having described the basic requirements and views of organisational structures, it is now necessary to delve deeper into the determinants of the entrepreneurial organisation.

6.2.2 Design issues

Cornwall and Perlman (1990: 9) believe that not every organisation that contains intrapreneurs can be labelled an entrepreneurial organisation. Their view is that organisations that have proper organisational support for entrepreneurship and an internal environment conducive to entrepreneurship, can be called entrepreneurial organisations. Kurato *et al.* (1993: 30) support this view with the following statement: “To establish corporate entrepreneuring, companies need to provide the freedom and encouragement that entrepreneurs require to develop their ideas.” This can be a problem, because top managers may not believe that intrapreneurial ideas can be developed in their environment. They may also find it hard to implement policies that encourage freedom and unstructured activity.

For Sathe (1989: 20) the essence of entrepreneurship lies in the recognition and exploitation of new business opportunities involving new products, markets and technologies. The large, diversely defined organisation needs to pursue a myriad of opportunities on many product, market and technology fronts simultaneously. Sathe feels that in today's highly interdependent, global economy, entrepreneurial opportunities arise in unexpected ways and the organisation that wishes to be effective needs to notice these opportunities quickly. In response to the heightened demands of this economy, top management in many diversified companies is working to promote multiple centres of entrepreneurial initiative.

De Coning (1992: 11) proposes that the optimisation of intrapreneurship in an organisation depends on the integrated functioning of three sub-systems: top management, the organisation and its employees. His views are supported by Reilly and DiAngelo (1987: 29). The following are required of each of the three sub-systems in order for an organisation to be entrepreneurial: **Top management** should be future orientated in their vision for the organisation. Employees should be inspired and enthused. Top management has the responsibility to be suitable role models for employees. They should support the efforts of their employees and should be tolerant of their intrapreneurial mistakes. It is their task to continually coach and mentor employees and to establish and maintain a culture that is conducive to intrapreneurship.

The **organisation** should not be centralised in decision-making. Rules and procedures should be kept to a minimum. Job descriptions should be widely defined and people should be regarded of utmost importance to the organisation. Lastly, the organisation should not be risk adverse.

Employees should assist in the development of a sound understanding of both internal and external business environments in order to ensure that the spark of creativity and experimentation remain. Employees should be put in positions where they will really be able to scan the environment for potential opportunities. They should also be empowered in order to have the necessary freedom to experiment with new ideas. They should be given access to organisational resources, which may be required for exploitation of new opportunities. It is important that employees be suitably rewarded and recognised for their intrapreneurial achievements. Employees should be protected against possible career risks stemming from intrapreneurial failures.

Organisations should take care when applying conventional management methods to promote intrapreneurship, for example the setting of objectives, motivating people to accomplish them and monitoring and controlling accomplishments. Special care should be taken with the following three measures:

Mandating entrepreneurship. This often results in the appointment of company managers as in-house entrepreneurs in a mechanistic manner. It is preferable to hire independent entrepreneurs with a proven track record to inject entrepreneurship into existing company business units.

Using large financial incentives, presumably to match the potential rewards of independent entrepreneurship and to create sections of internal inequity, can lead to disastrous results.

Using existing financial control systems to monitor entrepreneurial initiatives and relying on traditional management approaches to control these initiatives, can lead to overly frequent intervention and misguided direction during the crucial development phase of ventures (Sathe, 1989: 21).

6.2.3 Organisational culture

Culture is a social context that affects the way people behave and relate. This is also true of organisational culture. Albrecht (1987: 52) described organisational culture as having five distinct dimensions, namely authority, values, norms, rewards and sanctions (punishment for unacceptable behaviour). Corporate subculture, also called superordinate values (Peters and Waterman, 1982: 17), serves as the integrating centre for structure, strategy, systems and staff.

The importance of organisational culture is determined by the way it influences the success of the organisation and the way it influences the well-being of the organisation's employees. Seen in terms of the delineation of this research, this can be rephrased as follows: To what extent does the organisational culture support intrapreneurship within the organisation? Tropman and Morningstar (1989: 86) adapted the well-known McKinsey 7-S framework of structure, strategy, systems, skills, staff and style, that all centred around shared values. This is illustrated in Figure 6.2.

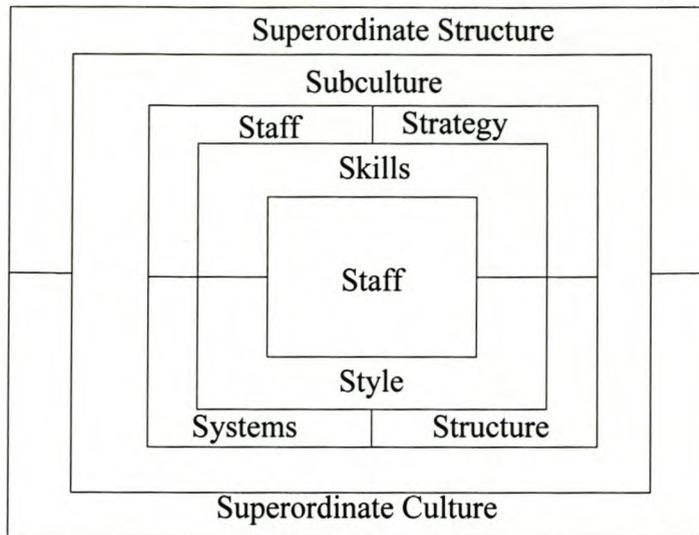


Figure 6.2 The Tropman Ten-S system

Source: Tropman and Morningstar (1989: 86)

This model proposes the importance of the relationships between the self (the individual), the super ordinate and the subculture systems in an organisation.

Entrepreneurial management is crucially concerned with crafting an appropriate culture, not only because of the integrating properties described earlier, but also because the belief system of an organisation enthuses and inspires individuals towards organisational participation. Weaver and Henderson (1995: 5) developed the Organisational Culture Inventory Circumflex (OCIC), which is useful in the prediction of entrepreneurial cultures in organisations. The Organisational Culture Inventory Circumflex supports the hypothesis that culture will inhibit an individual's propensity to behave entrepreneurially, as it tends to be encompassed in a higher degree of administration and bureaucracy. They also support the view that those that wield power within organisations will have a major influence on the culture of the organisation. The elements of the OCIC described hereafter could be employed in the transformation of a traditional organisation into an entrepreneurial one.

In a humanistic, helpful culture, organisations are constructive and people-centred. In an affiliative culture, organisations are found to be friendly, happy, considerate places to work. When the culture is found to be 'approval' orientated, organisations avoid conflict and maintain good working relationships – at least superficially. Conventional culture is promoted by organisations that are conservative and traditional. The dependent nature of culture indicates that organisations are controlled and run from the top. A culture of avoidance usually indicates that organisations threaten to punish mistakes. Oppositional culture is indicative of organisations that are prone to value negative criticism. Power culture is found in organisations that make decisions based on rank, positions and authority. A competitive culture is found in organisations that expect people to out-perform one another. Perfectionistic elements in culture are found in organisations that value persistence and hard work. An achievement culture suggests organisations that do things well and value people who set their own goals and accomplish them. In a culture of self-actualisation, organisations want to see the job done and want people to enjoy their work.

Weaver and Henderson used the organisation culture inventory described in the preceding paragraph to prove the fact that in many organisations there is a culture of doing traditional things well. Their data illustrate cultures where risks are not taken, sometimes to the point of over-caution, where the level of bureaucracy is high, and where individuals are expected simply to conform. They also found low scores in the humanistic/helpful areas. Coupled with high scores in avoidance, this suggests less constructive conflict and avoidance of criticism. In summary, it can be concluded that in their sample they were able to identify cultures that were negative in terms of nurturing the entrepreneurial spirit. These findings of Weaver and

Henderson (1995) are echoed by Cornwall and Perlman (1990: 69) who contrast an entrepreneurial culture with traditional cultures (see Table 6.1).

Table 6.1 Traditional versus entrepreneurial cultures

Dimension	Traditional Culture	Entrepreneurial Culture
Strategy	Values the status quo. Protects the current assets. Conserves.	Emphasises new ideas. Looks to the future.
Productivity	Short-term view of productivity and performance.	Short and long-term view of productivity and performance. Does not forget the past. Other performance criteria, such as ethical behaviour, are important.
Risk	Downplayed – punished.	Emphasised, supported and rewarded.
Opportunity	Absent in culture.	Integral part of culture.
Leadership	Father knows best. Top-down leadership.	Culture of empowerment.
Decision-making	Autocratic. ‘Big Daddy’ culture.	All can contribute.
People	Disposable.	Indispensable. The common worker is the hero.
Affect	Largely lacking. Data and facts/figures are what count.	Important. The culture, values, commitment and passion in service of the organisation.
Structure and communication	Important part of culture. “Things are done formally and by the book.”	Flexible, serves everyone in the organisation.
Creativity	Grudgingly tolerated.	“Prize and worship it.”
Efficiency	Valued. Controllers are heroes.	Valued if benign and supportive of new ideas and products. “Will be efficient but not as an end in itself.”

Source: Cornwall and Perlman (1990: 68)

In summary, culture is important in understanding entrepreneurial organisations. This section of Chapter Six has briefly explored what culture is and how it influences the components of

an organisation. It has then juxtaposed traditional cultures with the culture found in entrepreneurial organisations in order to propose the essential elements of culture that should be incorporated during the transformation from traditional to entrepreneurial organisation. However, culture exists within an environment, and Section 6.3 therefore collates and comments further on elements of the entrepreneurial environment.

6.3 Entrepreneurial environments

Luchsinger and Bagby (1987: 12) state that companies that foster intrapreneurship are usually characterised by the following: they practise enlightened management principles, they adopt an entrepreneurial style that avoids bureaucratic barriers and fosters an innovative climate and they encourage intrapreneurship and innovation among the workforce.

Cornwall and Perlman's (1990) comparison of traditional and entrepreneurial organisations sets a framework for the description of organisational entrepreneurship. This framework is depicted in the Table 6.2.

Table 6.2 Traditional and entrepreneurial organisations

Organisational characteristics	Traditional organisation	Entrepreneurial organisation
Strategy	Defensive. Protection of present niche is primary concern. Variations through acquisitions and mergers.	Actively seeks out new ventures. Protects current niches worth saving through adaptation.
Environmental scanning	Changes viewed as threats. Scan external environment to identify threats.	Changes viewed as opportunities. Scan external environment for new opportunities.
Effectiveness and control	Primarily short-term focus (quarterly and annual performance criteria).	Primarily long-term focus (adaptation and survival).
Risk	Something to be minimised.	If approached intelligently, key to growth, adaptation and survival.
Organisational culture	Objective and analytical. Culture serves to protect status quo.	Affective components also important. Culture serves to nurture adaptation and innovation.
Structure and communication	Formal lines of authority and channels of communication are important.	Informal structures and horizontal communication dominate actions.
Decision-making	Top management sets narrow parameters for organisation. May or may not allow input from below.	Top management establishes mission and vision. Input from below is encouraged and utilised.
People	Viewed as an abundant resource that is easily replaced.	Viewed as the key resource to be protected and used to their fullest.
Creativity	Something to be tolerated.	Something to be fostered, developed and encouraged.

Source: Cornwall and Perlman (1990: 1)

Busenitz and Barney (1997: 26) imply that the way managers in large organisations manage entrepreneurial employees will have a direct bearing on entrepreneurial successes in the organisations. This is also true of the decision-making processes. Entrepreneurs tend to rely on biases and heuristics in their decision-making processes, while managers tend to rely on

data, statistics and history. The implication of this is relevant to the time it takes to make decisions in large organisations. It also has relevance in terms of the internal organisational processes and elements of trust between employees and managers. Organisations tend not to foster a culture that is conducive to the described entrepreneurial way of decision-making. They would rather rid the organisation of employees with such tendencies, than accommodate them or change the internal processes.

Intrapreneurship is a non-starter in an environment where a restrictive, non-systems perception of reality persists. A holistic approach involving synergy between top management, organisation and employees is required for its successful implementation (De Coning, 1992: 12). In order to facilitate the formulation of such a holistic approach, the views of various authors on entrepreneurial environments are summarised in Table 6.3.

Table 6.3 Elements of an entrepreneurial environment

Element	Description
Entrepreneurial teams	Intrapreneurship is practised in a team environment.
Freedom and empowerment	Entrepreneurial teams are empowered. A measure of freedom exists.
Executive champions	Top management must champion and support intrapreneurs.
Trust and management style	Intrapreneurs must be trusted in a non-penalising environment. Management styles should promote intrapreneurship.
Communications and feedback	Feedback should be given constantly. Sharing of ideas should be promoted.
Rewards and recognition	Intrapreneurs and their work should be recognised. Results should be rewarded.
Sharing	Resources should be shared.
Creativity and innovation	Creativity and innovation should be promoted.
<i>Intracapital</i>	A system of <i>intracapital</i> should be installed.
New blood	New blood introduces new ideas into organisations.
Success promoted	A positive environment should be created through the promotion of successes.

Source: Adapted from Kurato *et al.* (1993: 30), Pinchot (1989: 242), Pryor and Shays (1993a: 44), Fry (1987: 4), Ducan, Ginter, Rucks and Jacobs (1988: 16), Brazeal (1996: 64), Sathe (1989: 24), Gardiner and Whiting (1997: 44) and Stevenson and Jarillo (1990:23)

6.4 The industrial engineering view of the enterprise and entrepreneurship

The generalised view of the entrepreneurial environment described in Section 6.3 can be illustrated by adopting the views of industrial engineering in the enterprise and its environment.

The industrial engineering view as described by Rohrs, Melsa and Schultz (1993: 10) is illustrated in Figure 6.3 below.

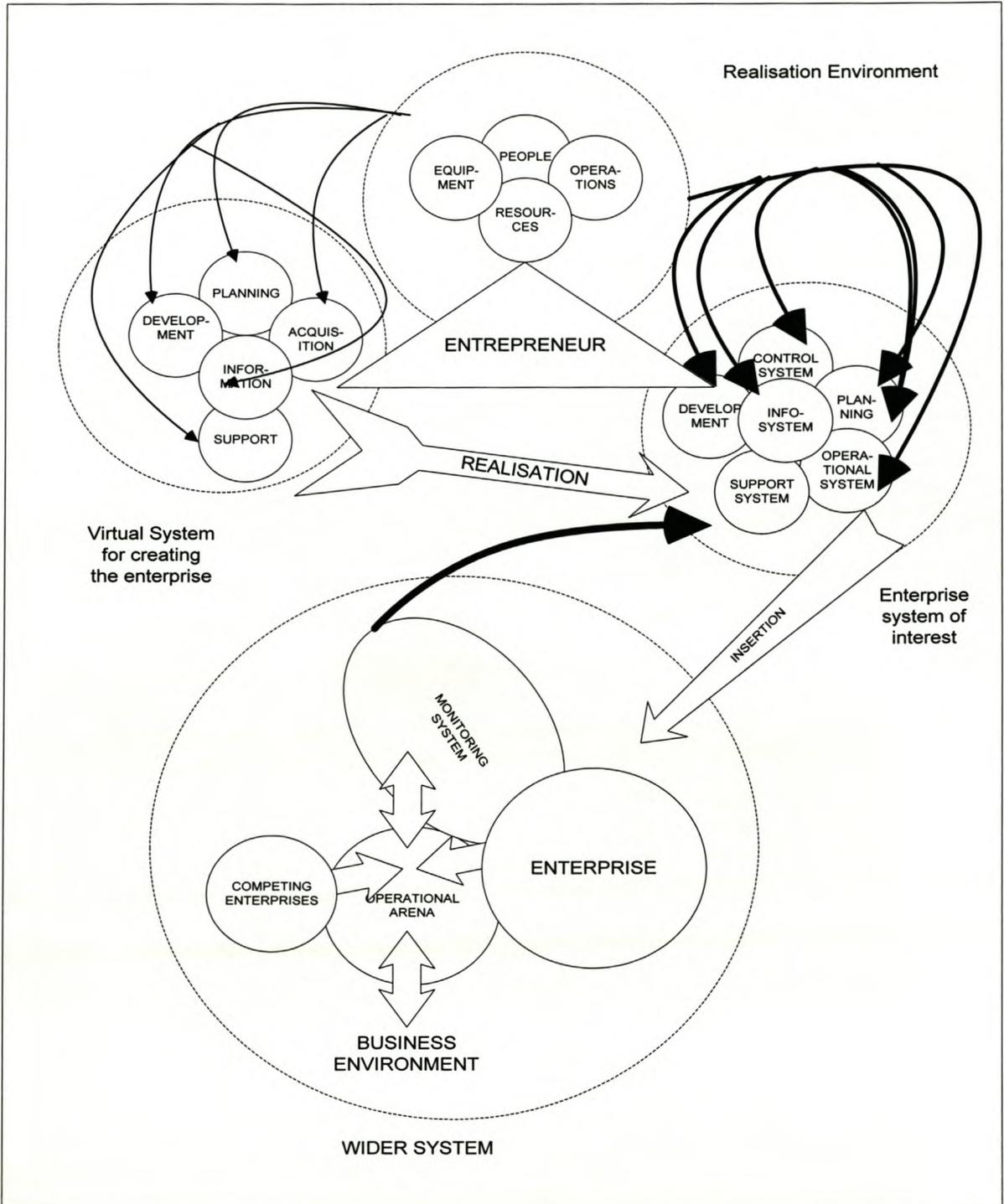


Figure 6.3 Enterprise in its environment

Source: Rohrs, Melsa and Schultz (1993: 10).

The main task of the industrial engineer lies in the design and optimisation of the enterprise (University of Pretoria, 1987). Viewing the enterprise in its environment produces a unique understanding of its complexity. The importance of the view detailed in Figure 6.3 lies in the fact that entrepreneurship can be achieved in the unification of three areas. The realisation environment of the entrepreneur consists of the combination of resources, people, equipment and operations. This manifests itself in a virtual system for the creation of the enterprise, which realises itself in a unified system of interest. This system of interest of the enterprise in turn consists of a control system, planning, development, a support system, an operational system and an information system. In the model, this view is then 'inserted' into the macro business environment. This particular view of entrepreneurship shows features of the environment that have to be incorporated in the design of the enterprise (here understood as an entrepreneurial organisation).

6.5 Summary

Chapter Six has explored aspects of the entrepreneurial organisation and concluded with the holistic views of the industrial engineer. It also concludes the literature study of this research. In the next chapters, the research design will be described and executed.

CHAPTER 7

RESEARCH METHODOLOGY

7.1 Introduction

This chapter describes the research design. It describes the proposed deficiency of the classical corporate entrepreneurship model and the rectification research. It briefly explores the theory of research diagrammatically and sets the research design parameters. The chapter also introduces the research objectives and defines their relevant hypotheses.

7.2 Background and limitations

Nooteboom (1998: 2) stresses the fact that a wide range of notions of entrepreneurship and intrapreneurship exists. The different notions emphasise different elements in different combinations and in different contexts, for example different forms of innovation or the identification, and utilisation of possibilities for consumption and production. This study however, treats intrapreneurship as a generic concept. From a practical point of view it is unrealistic to contextualise intrapreneurship for all the various stages in organisations' or ventures' life cycles. The findings of the study should therefore be interpreted with this in mind.

The previous views of intrapreneurship are described in Chapter One. A number of the many authors subscribing to elements of the classical intrapreneurship model are also quoted. This model contains the main elements innovativeness, self-renewal and proactiveness. Some authors (Antoncic and Hisrich: 2001) add the dimension 'new business venturing'. This

specific dimension is seen as a salient characteristic because it can result in new business creation within an existing organisation. For the purposes of this study however, it will not be taken into account directly, but rather indirectly, as it is regarded as a result of intrapreneurship and is not necessarily part of the dimensional construct.

The **innovativeness** dimension of the classical model refers to products and service innovation, with the emphasis on development and innovation in technology. Intrapreneurship includes new product development, product improvements and new production methods and procedures. Morris and Sexton (1996: 6) describe this dimension as the seeking of creative, unusual, or novel solutions to problems and needs. The **self-renewal** dimension indicates the transformation and changes of organisations through the change of key philosophies. It also points to learning or adaptation as dictated by the organisational environment (Zahra, 1991; Guth and Ginsberg, 1990; Stopford and Baden-Fuller, 1994). The third dimension, **proactiveness**, describes the organisation's posture in relation to its competitors

These three dimensions integrate the various views of the intrapreneurship construct but do not adequately describe the effect of an organisation's management on intrapreneurship, especially in terms of its employees and the processes in which they are involved. Only the dimension representing self-renewal points to some extent to the influence of management on internal processes. The focus of entrepreneurial dimensions tested with various instruments (ENTRESCALE (Covin and Slevin 1989); entrepreneurial intensity (Morris and Sexton: 1996); KEYS (Amabile *et al.*, 1996); entrepreneurial attitude orientation (Robinson, Stimpson, Huefner and Hunt, 1991); entrepreneurial quotient by Caspari (1985) to name a few) is either the entrepreneur, a specific dimension of intrapreneurship or the instrument

focus outwards with little exploration of the internal environment, processes and structures and management's effect on them.

This study attempts to rectify the shortcoming described above.

7.3 Research methods

The research process can best be described by Figure 7.1 adapted from Walizer and Weinir (1978).

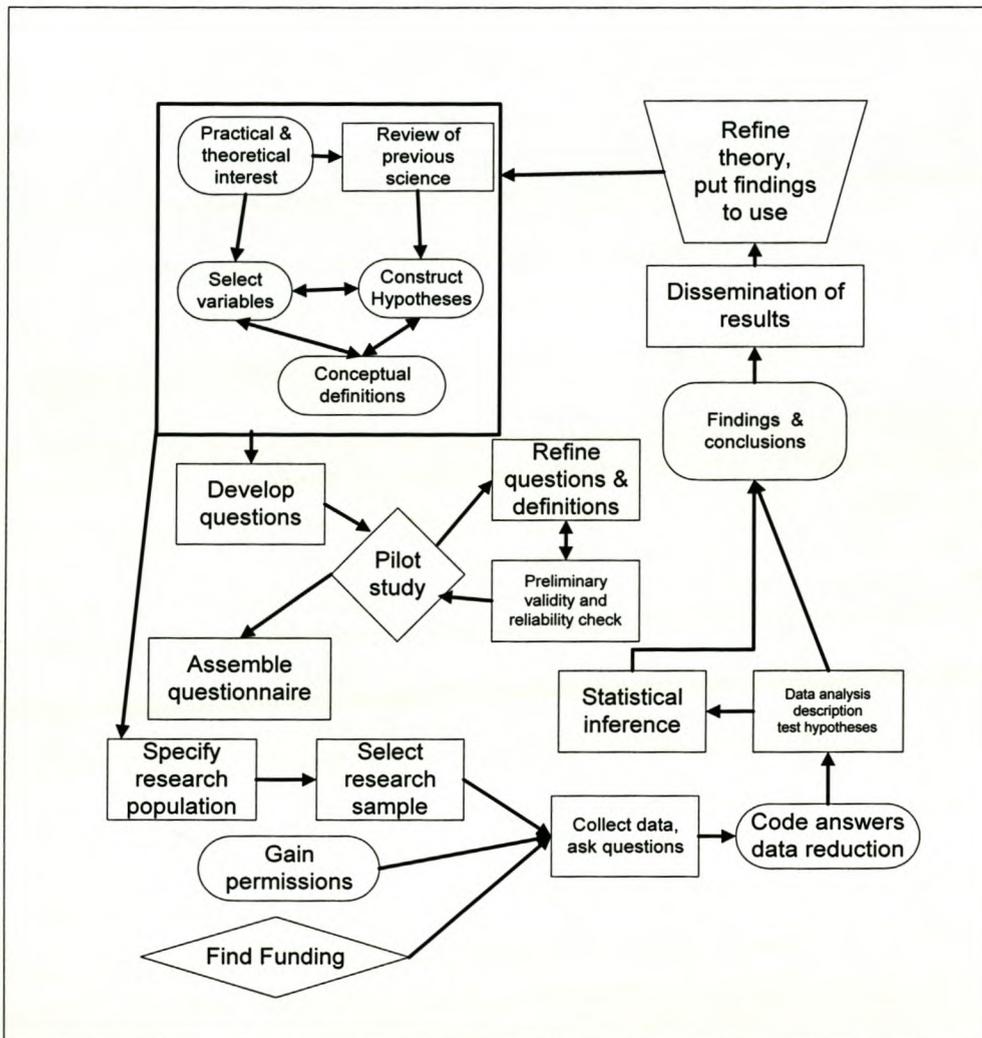


Figure 7.1 Research methodology

Source: Walizer and Weinir (1978).

7.4 Objectives and design considerations

7.4.1 Objective 1

The main objective of the research, as stated in the introduction to this study, is to formulate a model for intrapreneurship that could possibly improve the financial performance of South African industrial organisations.

In order to develop an *a priori* model, the researcher explored the literature on the subjects covered in Chapters Two to Six. The researcher also conducted unstructured interviews in a typical entrepreneurial organisation, 3M, during a visit to the United States of America to assist in the formulation of the *a priori* model. During the interviews the following areas applicable to intrapreneurship were discussed:

- communication
- creativity and innovation systems
- organisational structures
- *Intracapital*
- intrapreneurial freedom (specifically the freedom to spend a portion of one's time in an area of choice)
- territoriality.

Interviews were conducted with members of staff that represent some of the levels in the 3M organogram namely: a secretary, a marketer, a human resource manager, and the executive in charge of the facility. The interviews were concentrated on confirming some of the areas of intrapreneurship as described in the literature.

7.4.2 Objective 2

The second objective is to provide key factors that will add dimensions to the 'classical' intrapreneurship model and thus aid in the understanding of corporate entrepreneurship.

7.4.3 Objective 3

The third objective is to establish the relationship between organisational age and the key factors of Objective 2.

7.4.4 Objective 4

The fourth objective is to establish the relationship between organisational size and the key factors of Objective 2.

7.4.5 Objective 5

The fifth objective is to establish the relationship between an organisation's perceived risk profile and the key factors of Objective 2.

7.5 The hypotheses

7.5.1 Setting of hypotheses

Lehaney and Clarke (1995: 14) make some observations in respect of the setting of hypotheses. They believe that the setting of hypotheses yields general issues that are being considered and specific questions that are being asked.

They also state a number of criteria whereby the hypotheses should be measured.

They should be clearly stated, have operational definitions and definitions of technical terms; there should be no vagueness. They should be testable or resolvable. If the hypotheses contain any relationships between variables, they should indicate the expected direction of the relationship. The hypotheses should be limited in scope so that they are realistically testable. They should be based on literature and be consistent with known facts.

7.5.2 The research hypotheses

7.5.2.1 Background

Chapter One describes the research questions of this study. The most important is the question voiced by the organisation: “How can entrepreneurship best be promoted and developed within the organisation, in order for it to be more profitable?” The hypothesised answer is:

1. Through a culture that facilitates the exchange of information
2. Through a set of parameters that balances corporate control with intrapreneurial freedom
3. Through internal creativity and innovation systems
4. Through a facilitative management style

5. Through the adoption of specific strategies for intrapreneurship
6. Through a specific propensity for risk taking
7. Through an environment that is conducive towards corporate entrepreneurship
8. Through organisational innovativeness in competition
9. Through proactiveness

From this, the *a priori* model and sets of hypotheses are generated.

7.5.2.2 The *a priori* model

It is proposed that intrapreneurship could be fostered in large organisations through the implementation of the *a priori* model. This model is visualised as being multi-dimensional in nature and is illustrated in Figure 7.2. The model can be described as two linking triangles, one representing the dimensions of innovativeness and proactiveness, and the other representing management's influence on internal matters.

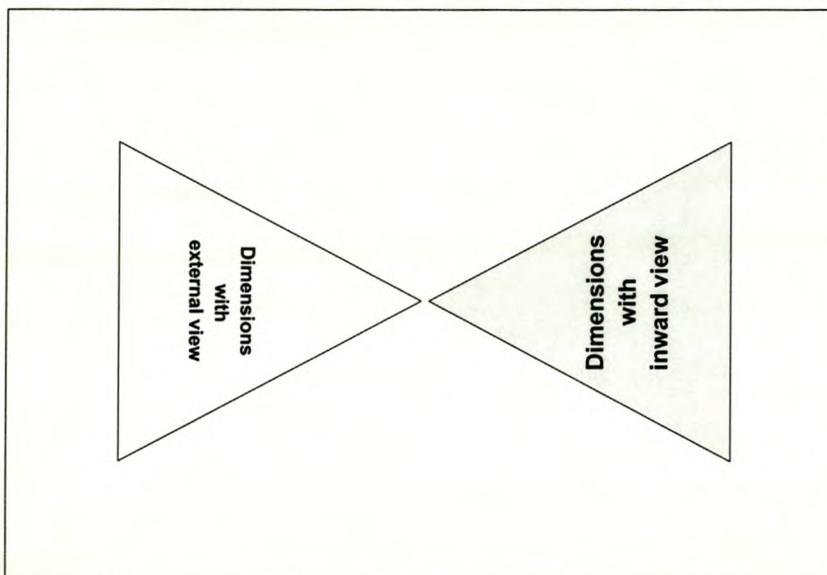


Figure 7.2 The *a priori* model – key factor intrapreneurship

This model can be translated into the research relationships that are illustrated in Figure 7.3. In this model Y(I) represents intrapreneurship and O_i, P_i , the classic dimensions, and $C_i, S_i, T_i, M_i, E_i, R_i$ and I_i , (new dimensions) are all variables distilled from the literature that would comprise the model for intrapreneurship. The additional dimensions and their proposed items that form the basis of the pilot questionnaire are listed in Table 7.1.

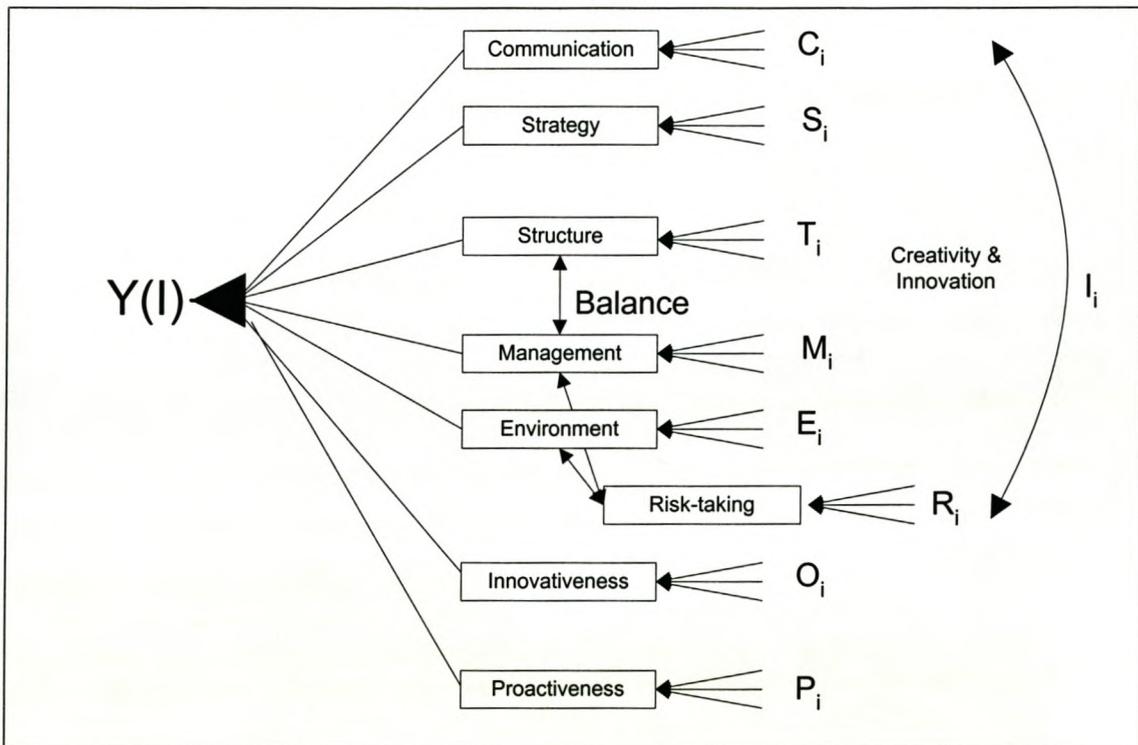


Figure 7.3 The research relationships

Table 7.1 Dimensions and their items

Dimension	Item
1. Management style and orientation	1.1. Need for control
	1.2. Innovation experience
	1.3. Goal setting
	1.4. Democratic style
	1.5. People focus
	1.6. Risk averseness
	1.7. Long-term focus
	1.8. Executive championing of intrapreneurship
	1.9. Support for intrapreneurship
	1.10. Culture driver of innovation
	1.11. Open communicator
	1.12. Corporate vision for intrapreneurship
	1.13. Trust
	1.14 Allow input from below
	1.15 Encouragement
	1.16 Future orientation
	1.17 Manage entrepreneurial problems (e.g. planning fallacy)
	1.18 Develop skills
	1.19 Structures
	1.20 Limit over-control
	1.21 Culture of empowerment
	1.22 Don't use traditional controls
	1.23 Envisioning/inspiring
	1.24 Discretionary powers to intrapreneurs
2. Communication	2.1. Open communication
	2.2. No 'turf' in communication
	2.3. Synergism
	2.4. No hierarchical communication
	2.5 Operational feedback

Dimension	Item
	2.6 Information exchange
	2.7 Share ideas
3. Environment	3.1 Scanning processes
	3.2 Learning culture
	3.3 No risk averseness
	3.4 No defined 'turfs'
	3.5 Intrapreneurial freedom
	3.6 Empowered employees
	3.7 Serendipity practised and encouraged
	3.8 Rewards and recognition
	3.9 Access to resources
	3.10 Changes recognised as opportunities
	3.11 Problem-solving culture
	3.12 Excitement
	3.13 Experimenting culture
	3.14 Internal environment conducive
	3.15 Idea-receptive environment
	3.16 Freedom and empowerment
	3.17 Opportunities part of culture
	3.18 Creative climate
	3.19 Interactive learning
4. Structures	4.1 Informal, flat structures
	4.2 Teams for intrapreneurship
	4.3 <i>Intracapital</i>
	4.4 Generic structures
	4.5 Structure should support intrapreneur
	4.6 Integrate sub-systems
5. Strategy	5.1 Systematic planning for intrapreneurship
	5.2 Specific strategies
	5.3 Goal support for intrapreneurship

Dimension	Item
	5.4 Seeks new ventures
	5.5 Adaptation
	5.6 Long-term focus
	5.7 Administration strategy for resources
	5.8 Venture model in strategy
	5.9 Couple rewards to strategies
	5.10 Employ intrapreneurship as strategy
6. Risk-taking	6.1 Support
	6.2 Structure
	6.3 Resources
	6.4 Trust
	6.5. Changes
	6.6. Tolerance of failure
7. Creativity	7.1 System for development, support
	7.2 Practical search for creativity
	7.3 Prudent assessment of creativity
	7.4 Serendipity system
	7.5 Managing innovation
	7.6 Process model
	7.7 Promotion plan
	7.8 Streamline to be progressive, focused
8. Product innovativeness	8.1 Product lines
	8.2 Product changes
	8.3 R&D leadership
9. Proactiveness	9.1 New techniques
	9.2 Competitive posture
	9.3 Risk-taking propensity
	9.4 Environmental boldness
	9.5 Decision-making style

Following from this model, the hypotheses are set.

7.5.2.3 Main research hypothesis

The literature study indicates that organisations could possibly be effective entrepreneurial vehicles if certain key factors are implemented and if a balance is achieved between these factors. The *a priori* model and its sub-components have thus been conceptualised. The main hypothesis is:

Null hypothesis: There is no relationship between the composite financial index and the key factors, management style and orientation, communication, environment, structures, strategy, risk-taking, creativity, product innovation and proactivity.

7.5.2.4 Hypothesis 2

Once the main research hypothesis has been tested, the placing of the final model for intrapreneurship within different contexts must be examined. One can, for example, postulate that younger organisations are more intrapreneurial than their older counterparts.

The following hypothesis is therefore set:

There is no relationship between the components of the intrapreneurship model and organisational age; employee count; annual turnover; Beta coefficient and employee productivity.

7.6 Definition of the population

Target populations are defined as groups that a researcher would like to make general statements about. The population of interest is industrial organisations in South Africa. The Small Business Act (Act 102 of 1996) defines micro, small and medium enterprises as businesses with employee counts smaller than 200 and turnovers smaller than R50 million (averaged for all sectors). It follows that large business will have more than 200 employees and annual turnovers of more than R50 million. The researcher decided that the population described would make the study too comprehensive if all sectors were included. To facilitate the feasibility of this study, it was decided to rather concentrate on the Johannesburg Stock Exchange, and in particular the Industrial Sector. The final delimitation is described in Section 8.5 of Chapter 8.

7.7 Definition of the sample

7.7.1 Sample design

According to Henry (1990: 34) the goal of practical sampling can be achieved through the minimisation of total error in the sample selection, given the purpose and resources available for research. The determination of total error in sampling is described in Figure 7.4.

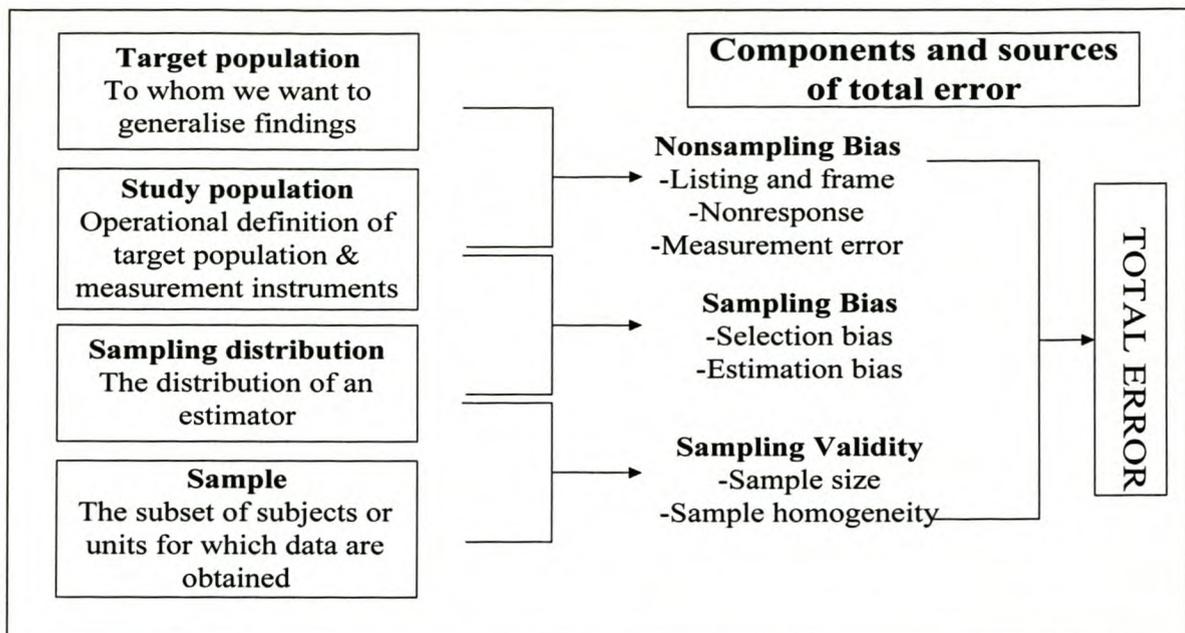


Figure 7.4 Practical sampling design

Source: Henry (1990: 34)

Henry (1990: 47) advises that certain questions should be answered in the design of the sample. **Pre-sampling** choices relate primarily to non-sampling error. The sampling technique affects the number of sub-population members in the sample and therefore the sampling variability for the sub-population analysis. It also has an impact on all three components of total error. **Post-sampling** choices are ways of estimating, adjusting or analysing the components of total error.

Pre-sampling choices.

- What is the nature of the study – exploratory, descriptive or analytical?
- What are the variables of greatest interest?
- What is the target population of the study?
- Are sub-populations or special groups important for the study?
- How will the data be collected?

- Is sampling appropriate?

Sampling choices

- What listing of the target population can be used for the sampling frame?
- What is the tolerable error or estimated effect size?
- What sampling technique will be used?
- Will the probability of selection be equal or unequal?
- How many units will be selected for the sample?

Post-sampling choices

- How can non-response be evaluated?
- Is weighting necessary?
- What are the standard errors and related confidence intervals for the study estimates?

In Chapter Nine the statistical tests that will be used are described. The researcher has already indicated that factor analysis will be used for the purposes of grouping data and distilling factors. Thorndike (1982b: 286), in a study of applied psychometrics, recognises the problems encountered when attempting factor analysis. In factor analysis, one is estimating a large number of parameters – as many as there are factors, times the questionnaire variables. With so many unknowns to be estimated, it seems clear that a sizeable sample would be required. Thorndike suggests that accepted practice call for a sample at least ten times the number of variables that will be entered into the correlation matrix. Henry (1990: 55) proposes that Lipsey's power tests be used to compute efficient sample sizes for analytical studies. Power tests are used to indicate whether a particular sample size is sufficiently sensitive to detect the expected effect. Rejecting the null hypothesis that there is no effect (or relationship) in a

particular hypothesis depends primarily on the size of the effect of the standard error of the estimate. The larger the standard error or the smaller the effect size, the more difficult it becomes to reject the null hypothesis.

Based on the above, the researcher made certain selections. The study has an analytical nature, as different hypotheses will be tested. In this process, relationships between groups and variables will be examined. Because this is an analytical study, the size of the sample becomes important. Thorndike (1982a: 286) and Henry (1990: 49) point out that sample size needs to be large enough in order for the null hypothesis to be rejected.

Walizer and Weinir (1978: 433) constructed a table that can be used to determine sample size.

This table reflects two axes – the desired accuracy and the risk of the sample being outside accuracy limits. An abbreviated table is shown in Table 7.2

Table 7.2 Sample size for various levels of risk and accuracy

	Risk				
Desired Accuracy	1%	2%	5%	10%	20%
1%	16587	13533	9604	3765	4108
2%	4147	3384	2401	1691	1027
3%	1843	1504	1067	752	457
4%	1037	846	600	423	257
5%	663	541	384	271	164
6%	461	376	267	188	114
7%	339	276	196	138	84
8%	259	212	150	106	64
9%	205	167	119	84	51
10%	166	135	96	68	41
15%	74	60	43	30	18
20%	41	34	24	17	10

Source: Walizer and Weinir, 1978: 433

The researcher desires an accuracy of 5%. The risk of the estimate being outside accuracy limits should not be more than 5 %. The preliminary estimate of the sample size is 384.

The level of significance is 5% for the testing of the hypotheses.

7.7.2 Sampling technique

The choice of sampling technique is based on the nature of the sampling frame (Henry, 1990: 52). As an adequate sampling frame is available, the researcher decided to use simple random sampling as the sampling technique. The sampling frame was numerated as the first step. A spreadsheet-generated random number was then applied to the sampling frame until the desired sampling size was achieved.

7.8 Index of financial performance

7.8.1 Entrepreneurship and organisational performance

The calculated index of financial performance described in Section 7.8.2 hereafter is based primarily on the work of Zahra and Covin (1995: 55). In their study, they demonstrated that corporate entrepreneurship (CE) is positively associated with organisational financial performance. However, it is necessary to justify the method used in Section 7.8.2 below as a means to indicate intrapreneurship.

Much work has been done to quantify intrapreneurial intensity and its effects. The work of Covin and Slevin (1989, 1990), Davis (1997), Morris, Davis and Allen (1994), Jennings and Seaman (1992), Shafer (1991), Zahra (1986), Zahra and Covin (1995), Morris and Sexton

(1996), De Castro and Chrisman (1995) and Manu and Sriram (1996) all either directly supports the fact that a relationship exists between organisational performance and intrapreneurship, or contribute to the reasoning. The work of Morris and Sexton is of particular importance. They found that “there is reason to believe that the level of entrepreneurial intensity may positively affect performance outcomes in a company” (Morris and Sexton, 1996: 8). Their findings lend specific support to similar research done by Covin and Slevin (1989) and Zahra and Covin (1995), in that a relationship between intrapreneurship (the degree and the amount of entrepreneurial behaviour in organisations) and financial performance exists.

Nevertheless, one should note that the intrapreneurship–performance relationship should be viewed longitudinally. Morris and Sexton (1996: 11), Zahra (1995: 242) and Zahra and Covin (1995: 55) found that the relationship between corporate entrepreneurship and financial performance strengthens over time. (One of the factors that may cause short-term negative profits might be the large investment made in research and development to produce new innovations).

Van der Post (1997: 75) proposes that financial performance is a sound basis on which to make inferences about organisational effectiveness as it encompasses the outcomes of all system dimensions of an organisation. It can be reasoned with reference to Cornwall and Perlman (1990: 15) that intrapreneurship, is in essence, a system for generating wealth and as such the calculation of shareholders’ wealth will be indicative of the measure of intrapreneurship found in organisations. Zahra and Covin (1995: 47) support this view. They state that there are at least two reasons for expecting a relationship between entrepreneurial activities and subsequent organisational performance. Firstly, innovativeness can be a source

of competitive advantage for an organisation. Innovative companies develop strong, positive market reputations. They also adapt to market changes and exploit markets or opportunity gaps. Sustained innovation moreover distances intrapreneurial organisations from their industry rivals, and thus increases financial returns. Secondly, the intrapreneurial organisation is by definition, more proactive than traditional organisations. Their quick market response therefore gives them added competitive advantage. Zahra and Covin (1995) point out that Dess and Miller in 1993 and Lieberman and Montgomery in 1988 noted that quick market responses can be translated into superior organisational performance.

7.8.2 Methods used

Corporate entrepreneurship influences an organisation's growth and profitability, as discussed in Section 7.8.1 above. The researcher therefore decided to measure 'financial success' as a composite index. The method that follows was used to measure financial performance.

The researcher decided to use four measures, namely, return on average assets (ROAA), return on average equity (ROAE), total asset growth (CTAGR) and share return (SR).

The methods used in the calculation of the measures are described below.

7.8.3 Return on average equity

The annual return on average equity was calculated using the following formula:

$$ROAE = \frac{(PAT_{i,t} - M_{i,t} - P_{i,t})}{[0,5(E_{i,t-1} + E_{i,t})]}$$

where:

- ROAE_{i,t} = return on average equity for company i for financial year t;
- PAT_{i,j} = net profit, including profits and losses of an extraordinary nature, after providing for taxation but excluding all deferred taxation for company i for financial year t, noting that, in the case of consolidated accounts, this is the combined profit of all the companies in the group, including the minority shareholders' interest in the profit;
- M_{i,t} = the share of group profit attributable to minority shareholders in the not fully owned subsidiaries for company i for the year t;
- P_{i,t} = the total of all dividends, declared or provided by company i for the year t in favour of all classes of preference shares;
- E_{i,t-1} = equity of company i as at the beginning of financial year t (end of financial period t – 1), equity meaning share capital and reserves, noting that minority interest and preference shares are excluded and that deferred taxation is included in reserves and the cost of control fictitious assets are deducted; and
- E_{i,t} = equity of company i as at the end of financial year t and equity meaning share capital and reserves.

7.8.4 Return on average assets

$$ROAA = \frac{PAT_{i,t}}{0.5 (CA_{i,t} + CA_{i,t-1} + TFO_{i,t} + TFO_{i,t-1})}$$

where:

$ROAA_{i,t}$ = return on average assets for company i for financial year t;

$PAT_{i,t}$ = income after taxation for company i for financial year t, noting that this income is defined as income before interest paid, that deferred taxation and minority interest are deducted, that investment income is included and that extraordinary items are excluded;

$CA_{i,t}$ = current assets of company i for financial year t

$CA_{i,t-1}$ = current assets of company i for financial year t
(end of financial year t-1)

$TFO_{i,t}$ = total fixed and other assets of company i as at the beginning of financial year t (end of financial year t-1), noting that goodwill, cost of control and fictitious assets are excluded and that mining assets as well as external investments are included; and

$TFO_{i,t-1}$ = total fixed and other assets of company i as at the end of financial year t, noting that goodwill, cost of control and fictitious assets are excluded but that mining assets and external investments are included.

7.8.5 Total asset growth

The compound total asset growth rate has been calculated by means of the following formula:

$$CTAGR = \sqrt[t]{\frac{TA_{i,n+t}}{TA_{i,n}}} - 1$$

where:

- CTAGR = compound total asset growth rate;
- TA = the total of all assets employed by the company or group, with the exclusion of intangible assets and cost of control of subsidiaries, noting that total assets equal total assets, plus total long-term investments, plus current assets;
- $TA_{i,n+t}$ = total assets for company i for financial year n, plus the number of years over which the growth in total assets is measured;
- $TA_{i,n}$ = total assets (current assets, total fixed assets and investments and loans, excluding goodwill) for company i for financial year n;
- n = year one of the number of years over which the growth in total assets is measured; and
- t = number of years over which the growth in the total assets is measured.

7.8.6 Share return

The share return has been calculated by means of the following formula:

$$SP_{i,t0} = D_{i,t1} \left[\frac{1}{(1+R)^1} \right] + D_{i,t2} \left[\frac{1}{(1+R)^2} \right] + D_{i,tn} \left[\frac{1}{(1+R)^n} \right] + SP_{i,tn} \left[\frac{1}{(1+R)^n} \right]$$

where:

$SP_{i,t0}$ = closing price of ordinary share i at the end of financial year t 0;

$D_{i,tn}$ = sum of all dividends of ordinary share i in financial year t;

R = share return which is the internal rate of return given cash flow; and

$SP_{i,tn}$ = closing price of ordinary share i at the end of financial year tn.

7.8.7 Financial parameters

The researcher used the Bureau of Financial Analysis (a bureau within the Graduate School of Business of the University of Pretoria) as source of information. The Industrial Sector of the Johannesburg Stock Exchange was used as the sampling frame. The financial calculations were applied to the sample. Data for a period of three years (1998 to 2000) were examined, representing an organisational planning period. The rationale for this specific period is given below.

Given the time constraints of the study, it is not possible to do a longitudinal study or possible to measure perceptions and then analyse financial data. Perceptions are measured post hoc. Zahra and Covin (1995) suggest that financial measurements, in the testing for a relationship with corporate entrepreneurship, should be measured over longer periods. This should be done in order to ensure that the results of entrepreneurship within the organisation have manifested in the financial performance. It is therefore preferable to measure financial results over periods as long as ten years. However, it can be debated if this methodology is applicable when associated with post hoc measurements. In this study the relationship between intrapreneurship, as expressed through the views of executive management, and financial performance is examined. The views of management were probed during the years 2001 to early 2002. The post hoc views of management should have bearing on the financial details. A period of ten years therefore seems inappropriate and it was thus decided to use the published information for a shorter period. It is generally accepted that planning in organisations fall in three categories, short-term, medium-term and long-term. Many organisations, including governmental institutions, follow a 'rolling' three or five year planning period for medium-term plans in which planning is an annual, but continuous process for three to five years. Mitchell (1978: 296) confirms this as preference for corporate planning. It was thus decided to analyse the financial data for a period of three years, as close as possible to the measurement of management's perceptions.

7.8.8 Sample organisations and data retrieved

The data for industrial sector organisations that fit the research period were transformed and prepared for factor analysis.

7.8.9 Factor analysis of the performance index

Factor analysis, described in Section 8.4.2.3 was performed on the data obtained in order to obtain principal components. The results of the analysis are described in Table 7.3.

Table 7.3 Principal components extracted (N=90)

Component	Loading
Return on average equity	.903
Return on average assets	.902
Compound asset growth	.350
Share return	.241

From these loadings, the Composite Financial Index (Appendix F) was calculated.

In the next chapter the development of the instrument to test the hypotheses will be described.

CHAPTER 8

DEVELOPMENT AND SELECTION OF INSTRUMENTS TO TEST THE HYPOTHESES

8.1 Introduction

This chapter outlines the development of a questionnaire to explore the added dimensions summarised in Table 7.1. It describes the creation of an item pool and the creation of a preliminary questionnaire. It then proceeds to describe the composition of the final questionnaire and the subsequent testing thereof for reliability and validity.

The chapter also defends the selection of an existing instrument to test dimensions of the 'classical' intrapreneurship model.

8.2 The model for questionnaire construction

Figure 8.1 describes how the final questionnaire was constructed. Section 8.3 expounds on the ideas embodied in Figure 8.1.

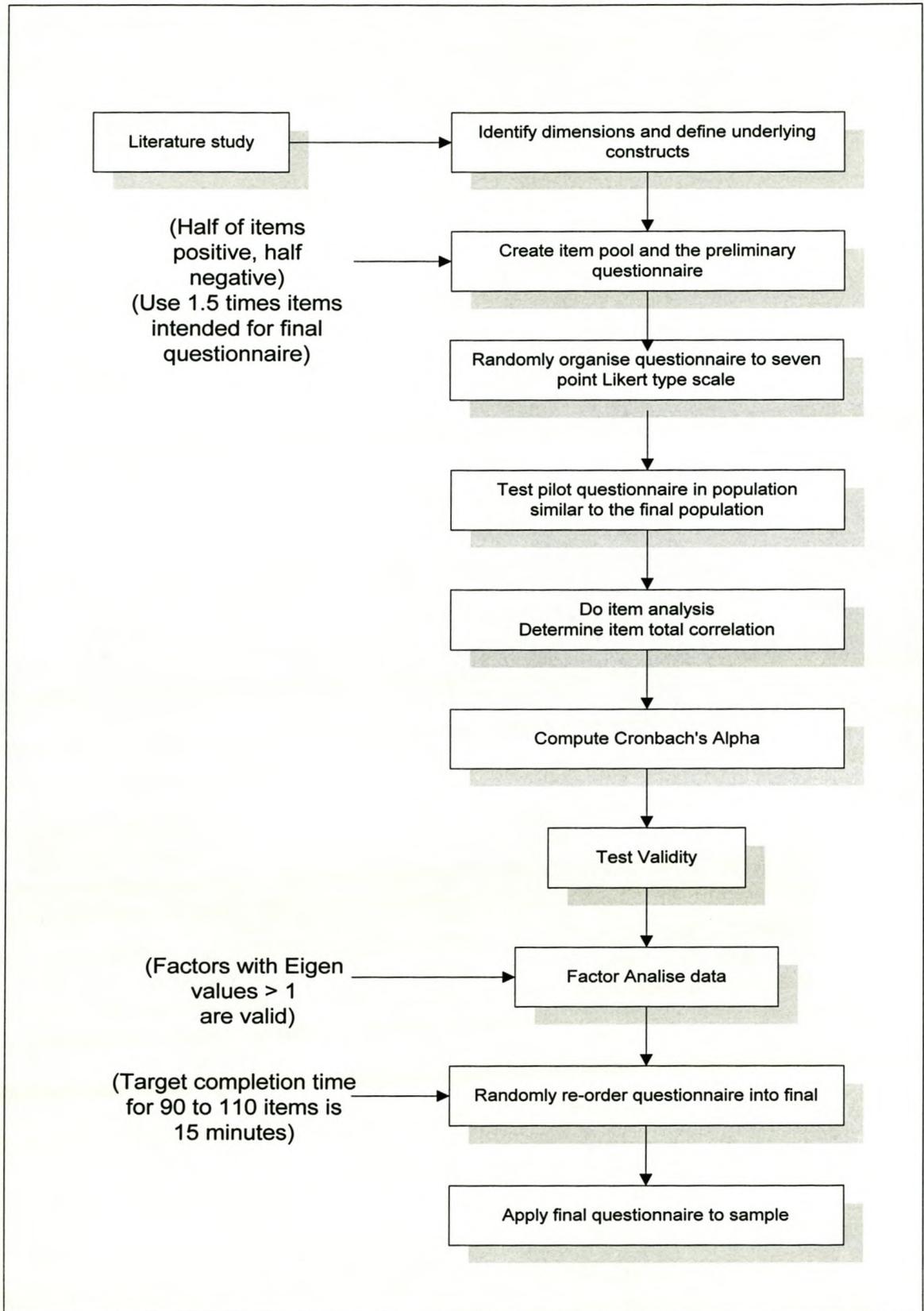


Figure 8.1 Questionnaire construction

8.3 Questionnaire construction

8.3.1 Design of the questionnaire

In this section, the methodology used in the development of the questionnaire to test additional dimensions is described.

In order to test the hypotheses, it is necessary to establish the following: The measure of intrapreneurship and the ability of the work environment of the organisations to be assessed, to positively influence creative and innovative behaviour. Respondents' entrepreneurial behaviour needs to be ascertained along with the suitability of the organisation's environments for facilitating entrepreneurial behaviour. Management control and the degree of entrepreneurial freedom need to be determined.

The main kinds of data collection for this type of study are mailed questionnaires and standardised interviews. According to Oppenheim (1992: 102), the main advantages of mail questionnaires are low cost of data collection and of processing. There is an avoidance of interviewer bias. The mailed questionnaire will also reach respondents who live at widely dispersed addresses.

The main disadvantages include low response rates and consequent biases, as well as unsuitability for illiterate respondents. There are no opportunities to correct misunderstandings, to probe for further explanation, or to control the order in which questions are answered. Incomplete questionnaires also become a problem. There are no opportunities to collect ratings or assessments on observations.

To increase response rates Oppenheim suggests that an advance warning of the study be given and an explanation be provided why respondents were selected. Publicity in local media will enhance the effectiveness of the study. Small incentives might motivate respondents. Lastly, it is imperative to ensure confidentiality.

Given the constraints of time and budget, the researcher decided to use a mailed questionnaire, but to apply some of the suggested measures to ensure an adequate response rate. These include the usage of pre-warning, telephonically or by mail, confidentiality and an explanation that the study is done under the auspices of the University of Stellenbosch. It was furthermore decided to distribute questionnaires by post and by electronic mail.

The elements mentioned earlier in this section cannot be measured with a single available instrument that has been tested. It has been established that many instruments used in management do not have full validity in the South African environment (Hoole, 1998). The researcher therefore decided to develop a questionnaire, using the elements formulated from the insights gained by the researcher during the study.

8.3.2 Innovation and creativity

This section of the questionnaire is based on insights gained from the work of Amabile *et al.* (1996) and Mohamed and Rickards (1996). This section of the instrument focuses on the intra-organisational foundations of creativity and innovation.

Amabile *et al.* (1996) created an instrument called KEYS. This psychometrically sound tool is used for quantitatively assessing the perceived work environment for creativity. This tool

can be used profitably in conjunction with interviews and other questionnaires. When this instrument is used alone or with other methods, the model upon which it is based gives researchers a means of seriously turning their attention towards creativity in organisations, which is the root of innovation. Rather than focusing on the personality characteristics that dominated earlier psychological research on creativity, or on inter-organisational structures for implementation that have dominated organisations or studies of innovation, this approach highlights the psychological context of innovation. This is the work environment that can influence the level of creative behaviour displayed in the generation and development of new products and processes. Creative ideas from individuals and teams within organisations remain the basis of successful innovation.

Mohamed and Rickards (1996) conclude from a study to develop methodologies for assessing the innovativeness and creative climate of firms, that the climate will have a direct bearing on the amount of innovations (incremental and technological) that are produced by firms.

In the light of the above, the researcher feels that a section of the questionnaire should not only diagnose the additive degree to which organisations' work environments foster creative work, but it should also assess the effectiveness of environmental improvement efforts.

8.3.3 Entrepreneurial Attitude Orientation Instrument

This section deals with the entrepreneurial spirit and is based on the Entrepreneurial Attitude Orientation (EAO) instrument of Robinson *et al.* (1991). This instrument is an alternative to trait and demographic approaches in the study of entrepreneurs. According to Robinson *et al.*

(1991) the instrument solves three problems normally experienced when utilising standard instruments, namely:

1. Few instruments have been developed specifically for the research of entrepreneurship and those that have been are sometimes diagnostically ineffective.
2. Different instruments that are supposed to measure the same concept actually correlate weakly in that they lack convergent validity.
3. Personality measurements often lose efficacy when applied to a specific domain such as entrepreneurship, particularly the diffusion of the measurement instrument's focus across situations. The emphasis on interactive research in human behaviour indicates the need for theoretical models that both influence and are influenced by the environment (i.e. they are interactive).

8.3.4 Faul's questionnaire

In the previous studies of Faul (1986) and Goosen (1993), the effects of a questioning culture on productivity were explored. In this study, the researcher similarly needs to explore culture, but specifically with regard to the exchange of information. The experience gained is used in the compilation of this section of the questionnaire.

8.3.5 'Shared principles of success' questionnaire

It has already been said that in today's rapidly changing business environment, the ability of an organisation to adapt is considered the main factor in its survival and competitive success. The researcher has observed shared principles of success between learning and intrapreneurial

organisations, and therefore proposes to utilise questions similar to those used by Gardiner and Whiting (1997). Elements of Tables 8.1, 8.2 and 8.3 are used.

Table 8.1 - Individual learning and self-development

1. Happy with label of supervision
2. Given opportunity to solve problems
3. Found job satisfying
4. Felt sense of belonging
5. Aware of educational opportunities
6. Frequently contributed ideas
7. Personal aims considered in appraisals
8. Training took place regularly
9. Felt valued by organisation
10. Received regular feedback on performance

Source: Gardiner and Whiting (1997: 44-46)

Table 8.2 - Type of learning climate

1. Quality standards high
2. Good working relationships
3. Freedom to solve own problems
4. Mistakes seen as learning opportunities
5. Knowledge and resources shared
6. Employees not penalised for mistakes
7. Supportive atmosphere
8. Individual approach encouraged
9. Skills/resources shared with other departments
10. Opinions and suggestions valued
11. Atmosphere improved as a result of changes
12. Felt rewarded for effort

Source: Gardiner and Whiting (1997: 44-46)

Table 8.3 -Degree of empowerment

1. Confident of both skills and expertise
2. Committed as members of team
3. Supervisors provide appropriate help
4. Allowed to make decisions/not checked up on
5. Employees granted responsibility where required
6. Teams regularly make relevant decisions

Source: Gardiner and Whiting (1997: 44-46)

A set of questions was derived from the questionnaires described in Sections 8.3.1 to 8.3.5 to explore the additional dimensions of the proposed intrapreneurship model. Section 8.3.6 defends why the ENTRESALE was select to test the Classical model which forms part of the proposed model for intrapreneurship.

8.3.6 ENTRESALE questionnaire

The Section 7.2 of the previous chapter indicates that a well-researched body of knowledge with dimensions for intrapreneurship exists. Khandwalla (1977) in an organisational effectiveness study, developed a popular questionnaire to measure various dimensions of intrapreneurship. This questionnaire was refined by Miller and Friesen (1983) and Covin and Slevin (1989). It was tested in various studies, including a study for cross-cultural reliability by Knight (1997) and Antoncic and Hisrich (2001). Although various authors have developed similar scales, for example the Corporate Enretreneurship Scale by Zahra (1993b), or additional elements like the frequency and intensity of entrepreneurship (Morris and Sexton, 1996: 6), the basic measurement of the refined ENTRESALE is not altered. Knight (1997) states the goal of the instrument as “entrepreneurship at the firm level... reflecting the

innovative and proactive disposition of management". The ENTRESALE includes intrapreneurial orientation as seen in R&D activities, leadership and proactiveness. It also explores activities such as the number of marketed new lines of products and services. It therefore not only assesses management's orientation (external posture) towards intrapreneurship, but also what management favours and how they act, especially in terms of the external environment and the competition. What it does not address adequately is the internal orientation towards intrapreneurship.

Utilising the ENTRESALE to test the described dimensions, and new items to explore the internal orientation could provide additional richness to existing instruments that measure the construct of intrapreneurship.

8.4 The pilot and initial studies

8.4.1 General

There are three purposes for the pilot and initial studies, to test the validity and reliability of the measurement of the composed questionnaire and the experimental testing of the new dimensions of the proposed model.

It was decided to conduct this section of the study in two phases namely:

- Test the pilot questionnaire.
- Apply the initial questionnaire to a convenience sample to yield items for the final questionnaire.

The original 160 items created in the item pool were tested on a small convenience sample to determine the face validity, ease of reading, presentation and approximate speed of completion of the questionnaire. It was found that each item took approximately 15 seconds, or the total questionnaire 40 minutes, to complete. This was considered too long. Based on the experience of Van der Post (1997: 88), it was decided to trim the pilot questionnaire to 135 items that would take approximately 30 minutes to complete. This would still conform to the requirement of the pilot questionnaire to contain 1.5 times the questions intended for the final questionnaire (Smit, 1991: 155). Trimming was done by choosing between questions that would best represent the dimensions underlying each construct and that would thus have face and content validity.

The resulting questionnaire was then tested on a convenience sample, similar to the final population, which would deliver approximately 400 completed questionnaires. Questionnaires were distributed to two levels, executive and middle management. The questionnaire is attached as Appendix D. Unfortunately, only 166 useful questionnaires, representing five organisations, were returned. This result was subjected to reliability and validity analysis.

8.4.2 Reliability and validity

8.4.2.1 Item analysis

According to Rubin (1983: 92) there are three steps in the creation of a Likert-type scale:

- Statements or trial items are developed that might be used in the final questionnaire. Half of the statements are stated in a positive manner and half in a negative manner.
- The scale is developed.
- The items are tested on a sample population and item analysis is performed on the results.

Item analysis is done to reduce the number of questions by selecting the questions, that best differentiate between the respondents' opinions and thus produce concurrent validity and reliability. Trochim (2002) mention four general classes of reliability: inter-observer reliability, test-retest reliability, parallel-forms reliability and internal consistency reliability. Of importance to the initial study is internal consistency reliability. In the estimation of this reliability, the reliability of the instrument is judged through the estimation of how well the items of the instrument that reflect the same construct, yield similar results. In other words, the consistency of the results for different items for the same construct within a measure is estimated.

There are a number of internal consistency measures that can be used to determine reliability. Trochim (2002) mentioned four measures, namely, average inter-item correlation, average item total correlation, split-half reliability and Cronbach's Alpha (α). Smit (1991: 57) suggests that Cronbach's coefficient alpha should be used to determine the internal consistency of an item pool.

The coefficient alpha is computed as follows:

$$\text{Coefficient } \alpha = \frac{n}{n-1} \left[1 - \frac{\sum \sigma_i^2}{\sigma_x^2} \right]$$

where:

n = number of items in the scale;

$\sum \sigma_i^2$ = sum of item variances; and

σ_x^2 = variance of the total test scores.

The 135 item initial questionnaire yielded a coefficient alpha of .9750. Although of acceptable level, the high alpha indicates that the 135 items are all highly correlated. This problem will be addressed during the statistical analysis of the data.

The next step was to determine the construct validity of the instrument.

8.4.2.2 Construct validity

Many of the concepts that researchers wish to obtain about data are ones that cannot be observed directly, such as peoples' views or attitudes. Attitude, unlike tangible concepts such as age or income, is a construct or a label for a hypothetical quality (Rubin, 1983: 110).

Once a questionnaire has been constructed and tested for internal consistency, it might be internally consistent and it might have face validity, but it has not yet been established if items actually measure what they are intended to measure (content validity). In order to establish that, construct validity must be estimated.

Construct validity refers to the degree to which inferences can legitimately be made from the operationalisations in the study to the theoretical constructs on which those operationalisations were based (Phillips, 1976: 140). Factor analysis is the tool that is used to construct items that will measure accurately a specific theoretical construct in order to establish construct validity.

Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of unobserved variables (SPSS, 1997: 253). Factors that are derived

from factor analysis are constructs. The operational definition of construct validity is a factor loading (Guion, 1965: 128). Factor analysis refers to a variety of statistical techniques whose common objective is to represent a set of variables in terms of a smaller number of hypothetical variables (Lewis-Beck, 1990: 30). Factor analysis attempts to identify underlying variables, or factors, that explain the pattern of correlations within a set of observed variables. Factor analysis is often used in data reduction by identifying a small number of factors, which explain most of the variances observed in a much larger number of manifest variables. Factor analysis can also be used to generate hypotheses regarding causal mechanisms or to screen variables for subsequent analysis (for example, to identify collinearity prior to a linear regression analysis).

Factor analysis is depicted in Figure 8.2.

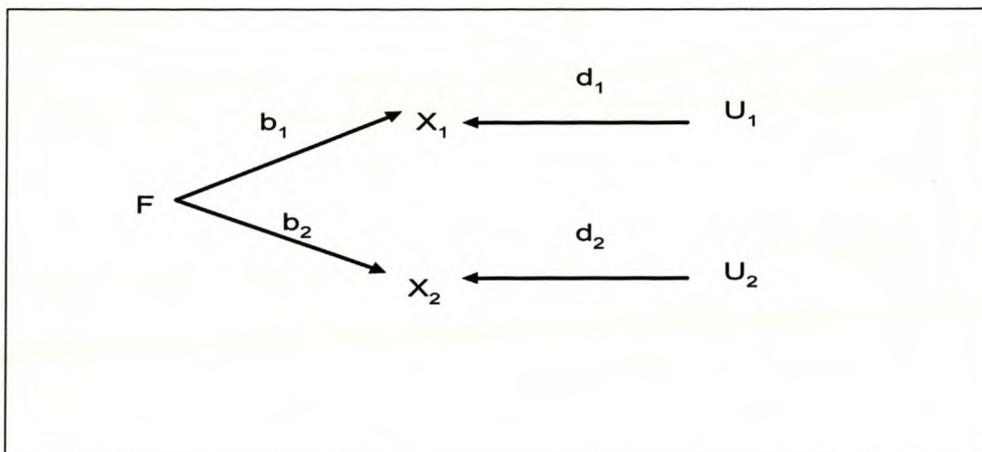


Figure 8.2 A two-variable, one-common factor model

Source: (Lewis-Beck, 1990: 7).

In Figure 8.2, X_1 is the weighted sum of F and U_1 and X_2 is the weighted sum of F and U_2 . Because F (the factor) is common to both U_1 and U_2 , it may be called a common factor.

8.4.2.3 Factor analysis

The items resulting from item analysis were subjected to factor analysis. The steps in factor analysis are:

- The correlation or covariance matrix is computed.
- The factor loadings are estimated.
- The loadings are rotated to make them more interpretable.
- Scores for each factor are computed (SPSS, 1997: 289).

Tabachnick and Fidell (1996: 640) recommend that at least 300 responses should be used in an attempt to factor analyse data. The initial study yielded only 166 responses that point to a potential problem.

The data were subjected to a preliminary structural equation modelling, which resulted in an inadmissible solution. Pallant (2001: 152), however, suggests that responses of less than 300 could still result in an acceptable factor analysis if only a few factors underlie the data, and item/scale correlations are high. It was therefore decided that the primary strategy to overcome this problem would be to scrutinise the item analysis done in Section 8.4.2.1 and described by Rubin (1983: 93) and Nunnally (1978: 605) to highlight problem-items. The resulting deletion of items would reduce items and thus improve the chances of a valid model. The item analysis highlighted a number of problem items, and 23 items with negative or very small item/scale correlations were deleted. Unfortunately, this exercise did not result in an acceptable ratio of responses to items. As a second strategy, it was decided that the suggestion of Pallant (2001: 152) would be followed and only items with high item/scale correlation would be selected. The theoretical structure had to be kept intact, which meant that high

item/scale correlation could not be used as selection criterion alone. The following algorithm was therefore used:

- Reject items with item/scale correlations less than .5.
- Ensure that the hypothesised dimensions are represented adequately.
- Within each dimension, choose the item with highest item/scale correlation.

This exercise resulted in an item bank of 64 questions that adequately represented the additions to the intrapreneurship model through seven dimensions namely: Management, Communication, Environment, Structures, Strategy, Risk and Innovation. Cronbach's Alpha calculated for the 64 items is .9761, which points to acceptable reliability but again highlights high inter-item correlations. The individual Alphas for the dimensions are listed below.

- Management - .9361
- Communication - .8282
- Environment - .9083
- Structures - .7857
- Strategy - .8591
- Risk - .7476
- Innovation - .8113

Nunnally's (1978) rule of thumb for the inclusion of a dimension is a minimum Alpha of .7.

As such all the dimensions were retained for further factor analysis.

Factor analysis was then performed on the 64 items that constitute the seven dimensions. The results of the factor analysis are attached as Appendix I. Barlett's test of sphericity is

significant in that it indicates that there are significant relationships among the items. The Kaiser-Meyer-Olkin measure of sampling adequacy is .657, which confirms the suitability of the data for factor analysis.

In the factor analysis, one factor emerged. It has a bearing on the influence of management on structures, processes and the relationship between management and employees. Ten items were selected based on their respective loading on the factor and consistency with the literature. Inter-item correlations are attached as Appendix H, and the key to this as Appendix G.

Knight's (1997: 218) analysis of the test results of the ENTRESALE also resulted in two factors emerging. The first, innovativeness, is represented by the dimensions product lines, product changes and R&D leadership. The second, proactiveness, is represented by new techniques, competitive posture, risk-taking propensity, environmental boldness and decision-making style.

As mentioned above, factor analysis based on the pilot testing of the proposed dimensions resulted in one factor (the loading on the factor is indicated after each dimension):

Management's internal influence is represented by goals (.704), creativity systems (.608), rewards (.541), *intracapital* (.588) and communications systems (.672), staff input (.708), intrapreneurial freedom (.646), problem solving culture (.520), intrapreneurial championing (.739) and empowerment (.752). The dimension details are described below. This key factor is named 'management'.

The key factor management's dimensions are discussed below. (The applicable areas of Appendix B refer). Each dimension is seen as a contributor to intrapreneurship.

Goals. This is the inclusion of intrapreneurship in the setting of goals. Goal-orientated pressure can be linked to productivity (Faul, 1986) and should therefore be part of management's dealing with staff. However, intrapreneurship goals should be included during the process of personal goal setting.

Rewards, and creativity and innovation systems. Systems and structures that promote creativity and innovations will greatly enhance intrapreneurship. Elements of these systems include a reward system, which rewards intrapreneurial behaviour. It also includes methods through which the creativity is enhanced and through which the different stages of innovation are managed (from conception to final product).

Intracapital. This is a method where a specific portion of expenditure (capital or operational) is allocated beforehand to allow for intrapreneurial actions. Intrapreneurial actions include new ventures, new projects or new methods.

Communication. Open, frank communication without territoriality enhances the exchange of ideas and information. It improves productivity and facilitates synergism.

Staff input. This dimension represents areas of the management style in the organisation. It points to democracy where input is received from everyone. By taking cognisance of the views and experiences of staff below, management can expedite many organisational events and processes.

Intrapreneurial freedom. This dimension points to limiting over-control by management and to innovative methods of management rather than the use of traditional controls. It also points to trust and empowerment, and the management of risk.

Problem solving culture. Faul (1986) in his research on productivity identified a problem solving culture as a key element of productivity. This dimension is included in the intrapreneurship construct, as an organisation wide approach to problem solving.

Intrapreneurship championing. Management should be the key driver of intrapreneurial processes in an organisation. They should champion the people and the processes alike.

Staff empowered. This dimension stresses the management philosophy in which staff can give input, are trusted, and in which staff feel included in the creativity processes of the organisation. It is essential to unlock personal knowledge and capability to its fullest extent.

The final intrapreneurship model is illustrated below in Figure 8.3

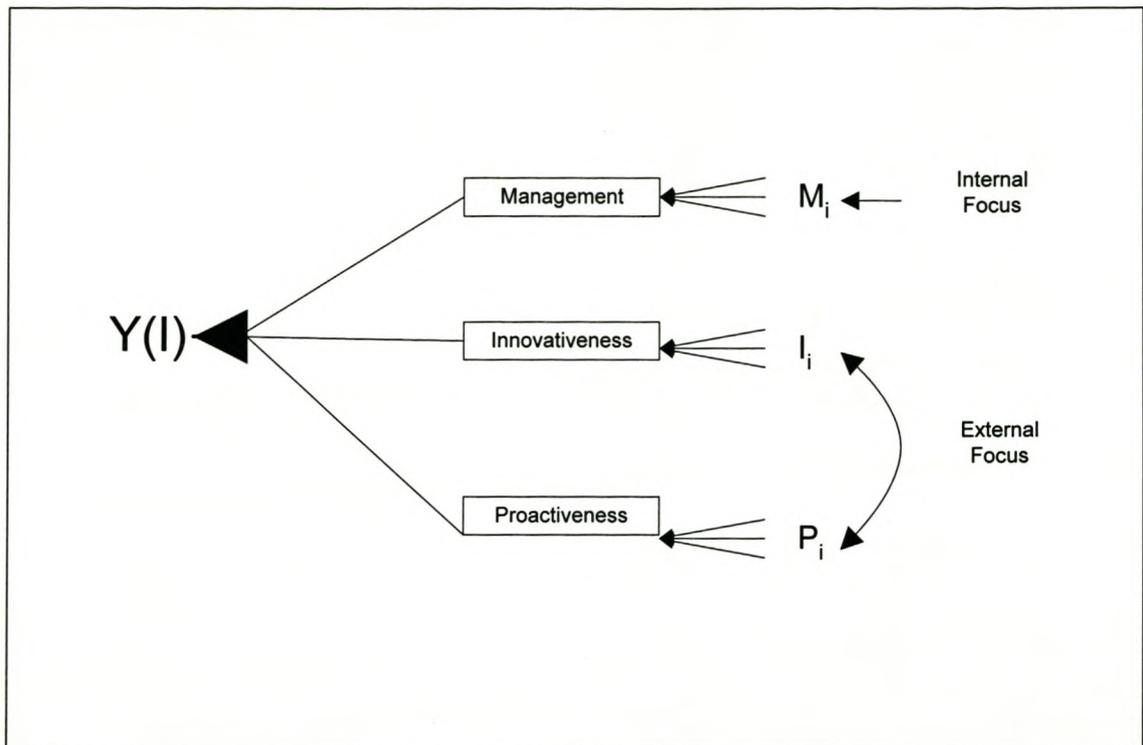


Figure 8.3 The revised model

The main research hypotheses would also change to:

Null Hypotheses: There is no relationship between the financial performance index and the key factors management, innovativeness and proactiveness.

Using the methodology described above in Sections 8.3 and 8.4 thus far, a final questionnaire with acceptable levels of reliability and validity was constructed. This questionnaire would test the proposed intrapreneurship model consisting of the three key factors and their associated dimensions, attached as Appendix J

8.5 Organisations included in the study

The financial performance index could only be computed for 231 organisations. A further 12 organisations, that operated outside of South Africa, were eliminated from the study as they were delisted or were suspended from the Johannesburg Stock Exchange at the time of measurement. The final population for the study thus consisted of 219 organisations. After the implication of the sampling methodology, as described in Section 7.7 had been taken into account, they were invited to participate in the study. An e-mail message was sent to the Group Human Resource Director of each organisation in November 2001. This message introduced the study and invited participation from an executive member of staff. This was followed up with a formal letter in January (attached as Appendix K). Initial responses by electronic mail were received within 48 hours (approximately 50% of the final yield). Third and fourth follow-up letters were sent to the organisations, delivering a final result of 109 organisations.

8.6 Data processing

8.6.1 The inspection procedure

Once responses to the questionnaires had been received, the researcher inspected them for usefulness. The inspection procedure resulted in the rejection of 19 responses.

8.6.2 The coding process

The edited questionnaires were then coded for use in the statistical package SPSS. During the coding process, additional information for each organisation was added. This information was obtained from the Bureau for Financial Analysis (2002). Categories are listed below:

- Organisation age (As at year-end 2000)
- Number of employees
- Employee turnover for the year 2000
- Calculated Beta (β) for 3 years

Organisational age was added because it can be reasoned that older organisations are more set in their methodologies, can adapt less and could thus be less intrapreneurial.

The number of employees, as well as the annual turnover, was added to establish the relative size of an organisation. Similar to organisational age, it could be speculated that larger organisations tend to be less intrapreneurial; conversely an organisation can only be dynamic and intrapreneurial if it is relatively small.

Entrepreneurship and intrapreneurship are akin to risk. The only published measure of risk is the Beta coefficient or measure of market volatility. Because 'risk' features prominently in the study it was decided to add this data.

The detail of each of the 'contextual variables' above is described in Section 9.4.2.

8.7 Conclusion

In this chapter, the development of the instrument for measurement was discussed. The development of an item pool was discussed. From the item pool, a pilot questionnaire was developed and tested for reliability and validity. This questionnaire resulted in the final questionnaire that was applied to the sample. The chapter also discussed the coding, capturing, editing and final preparation of the data for use in the final statistical analysis.

Chapter Nine will discuss the statistical analysis of the data and the results obtained.

CHAPTER 9

STATISTICAL TESTS AND DATA ANALYSIS

9.1 Introduction

It is the purpose of this study to gather information from a sample that could be generalised to the population of industrial organisations in South Africa. This chapter defines and describes the statistical methods that were used to achieve that, and the results obtained.

9.2 Preliminary data analysis

The first objective of this section of the research was for the researcher to familiarise himself with the data obtained. Data were summarised, and the quality of the data determined. Measures of normality, location and variability were computed. The statistical analysis of the data will include regression analysis. Pallant (2001: 137) states that multiple regression is sensitive to 'outliers' or extreme values. The SPSS program (SPSS, 1997) used for the statistical analysis identified ten values as extreme or as 'outliers'. The standard deviation for the data was calculated at 13.71. Four organisations were identified as falling outside of three standard deviations of the mean. This was confirmed by the fact that there are four values with standardised residual values exceeding either +3.3 or -3.3 (although values above and below +1.96 and -1.96 respectively should be investigated.), which can be categorised as 'outliers' (Tabachnick and Fidell, 1996: 139). To improve the usability of the data for this purpose it was decided to remove the four data sets. This resulted in 86 valid data sets for use in the statistical analysis. This final sample size conforms to Tabachnick and Fidell's recommendation (1996: 132) for regression analysis:

$$N > 50 + 8m$$

where m = number of independent variables

thus $50 + (32)$, or 82.

The data detailing participating and non-participating organisations, with their respective financial indices, were also tested to establish if a relationship could be found between the financial performance of organisations and their decision to participate or not. As a first step the data were tested for normality. The results of a Kolmogorov-Smirnov test of normality are detailed in Table 9.1 below.

Table 9.1 Kolmogorov-Smirnov test of normality

Statistic	Df	Significance
.174	219	.000

This indicates that the data are not distributed normally. The use of a non-parametric test was therefore indicated and Spearman's rho was used to test for response bias. This resulted in a correlation coefficient of .119 with a significance of .080, which indicates that there is not a relationship between financial performance and the choice to participate, or not. The population of organisations is attached as Appendix N.

9.3 Statistical tests

The following statistical tests were used in examining the data:

- Exploratory factor analysis, in order to test the pre-determined key factors for new dimensions and for the purpose of data reduction

- Multiple regression, in order to test the main hypotheses
- Correlation analysis, to describe the strength and direction of the linear relationships

In the next section of this chapter, the research hypotheses are described and explored.

9.4 The search for relationships

9.4.1 Main research hypothesis

9.4.1.1 Setting the Hypothesis

Chapter Seven sets the main research hypothesis that there is no relationship between the financial performance index and the key factors. The research question can be expressed as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

where Y = the dependent variable financial performance

α = the Y intercept

X_1 to X_3 are the independent variables 1 to 3 listed below, and β_1 to β_3 are the net changes in Y for each unit of X_i (holding the other variable constant).

The independent variables defined in Section 8.4.2.3 are:

Variable 1 – Management

Variable 2 - Innovativeness

Variable 3 – Proactiveness.

and Y is financial performance, measured with a composite financial index.

The interaction between the factors is applied in a model that assumes that financial performance is more likely in an organisation when all the factors are present, but less likely when only some factors are present.

The underlying assumptions are made in respect of this objective of the hypothesis:

- X_i are random variables.
- The relationships that exist are linear.
- The dependant variable is continuous and at least of interval scale.
- The error term has a normal distribution with a mean of 0.
- The variance of the error term is constant across cases and independent of the variables in the model.
- The value of the error term for a given case is independent of the values of the variables in the model and of the values of the error term for other cases.

These assumptions will be tested in 9.4.2.1 below.

From the above the following null and alternative hypotheses are set.

$$H_0: \beta_1 = \beta_2 = \beta_3$$

$$H_1: \text{Not all } \beta\text{'s are 0}$$

9.4.1.2 Testing the assumptions of the hypothesis

The data were examined to ensure that the assumptions were valid.

The relationship between the independent variables was tested for multicollinearity using condition indices. Condition indices are computed as the square roots of the ratios of the largest eigenvalue to each successive eigenvalue. Values greater than 15, indicate possible problems and values larger than 30 suggest a serious problem with multicollinearity (SPSS: 1997). It should be noted that multicollinearity between the two external key factors Innovativeness and Proactiveness, incorporated into the final questionnaire from the ENTRESALE (Knight, 1997), is indicated. The condition index for this case is 12.848 – indicating mild, but not serious multicollinearity.

Normality, linearity, homoscedasticity and the independence of residuals refer to the nature and the underlying relationships between variables. All these assumptions were investigated by examining the residuals scatter plots. Residuals are the differences between the obtained and the predicted dependent variable scores. Residual scatter plots are used to investigate:

- Normality – the residuals should be normally distributed about the predicted dependant variable scores.
- Linearity – the residuals should have a straight-line relationship with the predicted dependant variable scores.
- Homoscedasticity – the variance of the residuals about the predicted dependant variable scores should be the same for all the predicted scores.

The histogram and the P-P plot below indicate mild diversion from normality. This is confirmed by the residual statistics in which the standardised residuals have a mean of 0 (.000) and a standard deviation of 1 (.976).

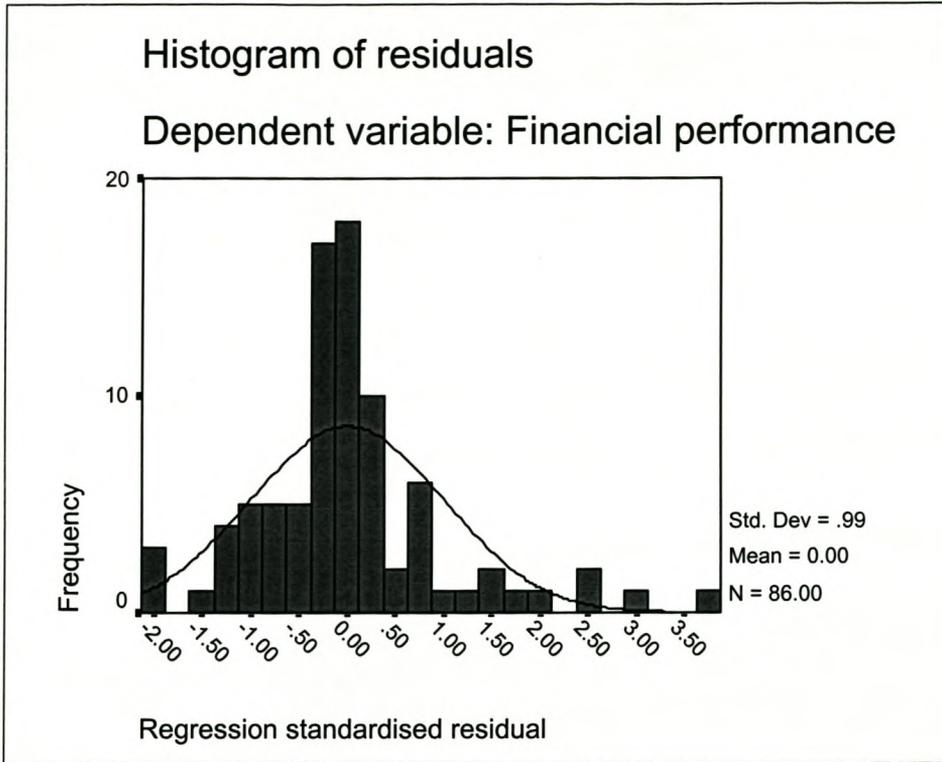


Figure 9.1 Histogram of residuals

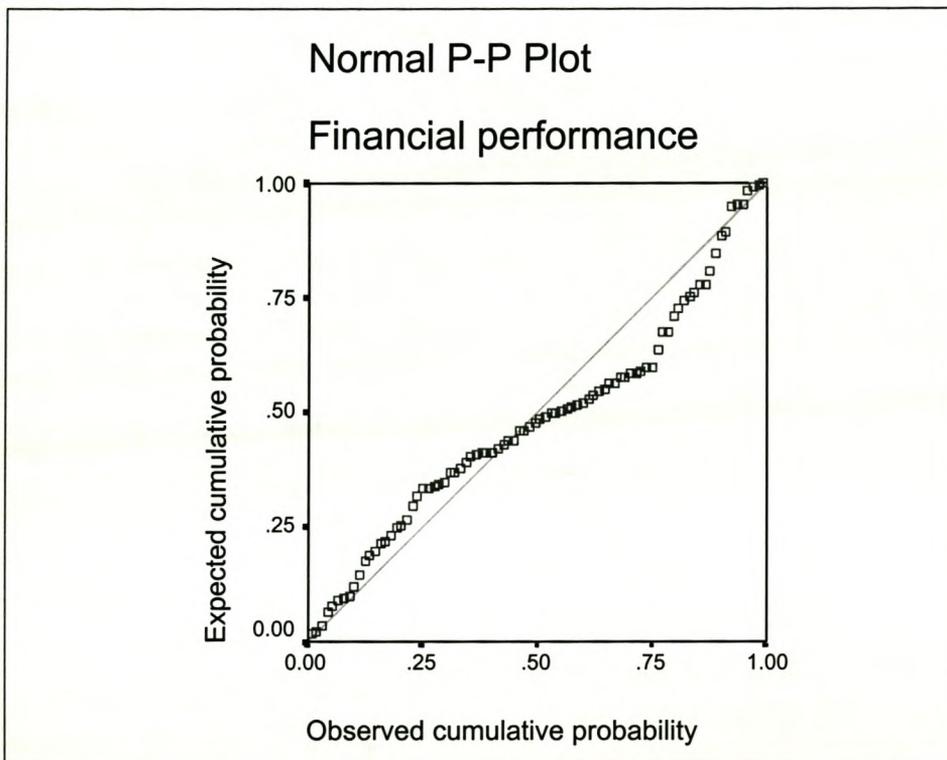


Figure 9.2 Normal P-P plot

The data were also inspected for outliers using Mahalanobis distances. A Mahalanobis distance is the distance of a particular case from the centroid of the remaining cases, where the centroid is the point created by the means of all the variables (Pallant, 2001: 220). It is used to detect any case that has a strange pattern of scores across all the variables, four in the case of this study. Mahalanobis distances were inspected and two cases, number 38 and number 84 were found to exceed the critical value for four independent variables 18.47 (Pallant, 2001: 144) with the respective values of 21.75 and 20.46. However, given the size of the data file, and the fact that four data points had already been removed before the analysis (Section 9.2), the data points and information were retained.

A standardised scatter plot of the standardised predicted dependant variable by the standardised residuals show a random pattern across the range of the standardised predicted dependant variable and as such indicates that the assumption of homoscedasticity is not violated.

Linearity of data can be inspected by inspection of the scatter plots. An inspection of the observed versus the predicted values (for regression analysis) indicated data points that are symmetrically distributed around a diagonal line – an indication of linearity. Similarly the distribution around a horizontal line of the scatter plot of residuals versus predicted values confirmed linearity. A further rule of thumb that can also be used as an indicator is the comparison of the standard deviations of the dependant variable and the residuals. An indication of non-linearity is when the standard deviation of the residuals exceeds the standard deviation of the dependent variable (Garson, 2002). The data were inspected and it indicated the following:

- Standard deviation of the dependant variable: 6.265
- Standard deviation of residuals: 5.5427

This confirms the assumption of linearity.

The independence of observations is normally tested by the Durbin-Watson coefficient. Independent observations will result in a Durbin-Watson statistic of between 1.5 to 2.5 (SPSS, 1997: 401). The analysis resulted in a Durbin-Watson statistic of 2.114, which indicates independence of observations.

Having determined validity of the assumptions for regression, the data were then subjected to standard multiple regression analysis as well as correlation analysis.

9.4.1.3 Testing the main hypothesis

In this section the main research hypothesis will be tested.

Pallant (2001: 143) suggests the following steps for multiple regression analysis:

- Check the assumptions
- Evaluate the model
- Evaluate each of the independent variables

The assumptions were confirmed in the previous section. The model presented was evaluated next.

In order to determine the best possible final model and to evaluate the contribution of each independent variable to the model, it was decided to evaluate the model in two phases. Firstly

to perform a stepwise regression in which the independent variables are entered into the model one after the other and then to enter all the independent variables at once. This approach was used because Menard (1995: 54) cautions against the use of stepwise regression to select variables. He feels that it is inappropriate for theory testing because it capitalises on random variations in the data and as it produces results that tend to be idiosyncratic and difficult to replicate in any other sample, than the sample in which they were originally obtained.

The stepwise regression's ANOVA table reported a significant F statistic (19.888), indicating that using the model is better than guessing the mean. The coefficient summary is detailed in Table 9.2 below.

Table 9.2 Results of stepwise regression

<u>Stepwise regression model</u>		
Retained variable	Beta	Significance
Management	0.416	.000
Excluded Variables		
	Beta	Significance
Innovativeness	0.006	0.958
Proactiveness	0.140	0.233

This result indicates that there is only one major predictor of the dependent variable – that of the independent variable management. The stepwise regression model explains 17.3% of the variation in the dependent variable Financial Performance. This is expected, as financial

performance is the result of a number of variables and not only management's influence on relations in an organisation. Khandwalla (1977: 665) alludes to this by suggesting that organisational performance consists of demographic variables, environmental variables, strategic variables, technological variables and structural variables – each consisting of a number of dimensions that total 26.

A multiple regression method in which all the variables are entered simultaneously was then followed, to establish if the final model could be improved. The results are listed below in Table 9.3.

Table 9.3 Standard multiple regression results

Standard multiple regression model			
Predictors	R	F	Significance
Innovativeness, proactiveness, management	0.434	6.329	.001
Coefficients			
Predictor	Standardised Coefficient	t- value	Significance
Innovativeness	-0.028	-0.233	0.816
Proactiveness	0.198	1.602	0.112
Management	0.503	2.652	0.009

This analysis resulted in a multiple correlation coefficient of .434, which is not a material improvement on the stepwise regression model.

The results of the regression analysis lead to the rejection of H_0 , as there is a relationship between the composite financial index and the three key factors.

Having determined the form of the relationship between the variables, the findings were confirmed during correlation analysis, which determines the strength and direction of the relationship between variables. All key factors have significant correlations with the composite index. The results of the correlation analysis are listed in Table 9.2

Table 9.4 Spearman's rank-order correlation coefficients indicating the relationship between financial performance and the intrapreneurship key factors (N=86)

Key factor	Correlation coefficient	P
Innovativeness	.277	< .01
Proactiveness	.329	< .01
Management	.504	< .01

9.4.2 Hypothesis 2

9.4.2.1 Intrapreneurship in context

In this hypothesis, the relationship between the intrapreneurship factors and the contextual variables turnover, age, employee count, Beta and employee productivity are set.

9.4.2.2 Organisational age

Organisations of various ages were part of the study. It can be postulated that organisations lose their dynamism as they become older. Similarly organisations could become more rigid and set in their ways and as such could be less intrapreneurial. This sub-hypothesis tests the

relationship between the intrapreneurship factors and organisational age. Organisational age was calculated as the difference between the date of inception and the year 2000. The hypothesis is set as follows:

H 2.1 There is no relationship between the intrapreneurship factors and organisational age.

9.4.2.3 Organisation size

As is the case with organisational age, the size of an organisation could have a bearing on its intrapreneurship. It could be hypothesized that as organisations become larger, they would be less intrapreneurial. Organisation size is determined by two items, annual turnover and employee count. The year 2000 was used as base during the calculations. The sub-hypotheses to test this was set as:

H2.2 There is no relationship between the intrapreneurship factors and organisational size measured by employee count.

and

H2.3 There is no relationship between the intrapreneurship factors and organisational age as measured by annual turnover.

9.4.2.4 Perceived risk

The introduction to this research describes the popular association of entrepreneurs with risk. Risk is measured within the model, especially in terms of management's attitude towards risk, both internally and externally. However, the risk attached to a specific organisation (as

external perception) is not explored. It is beyond the scope of this study to explore risk and its various components in totality, it is, however, possible to touch briefly on the relative risk of organisations.

Investors' reaction (as a group) to their perception of risk is displayed through the volatility of shares (Weston and Brigham, 1981: 542). Their perception includes the risk attached to a specific share when being compared to the market as a whole.

In this hypothesis, the relationship between risk, as defined above, and intrapreneurship is explored.

The perceived risk profiles of organisations were measured through the calculated β , in terms of the Capital Asset Pricing Model (CAPM) (*Profile: 2000*). This is an expression of the sensitivity of the return for a specific share relative to the market as a whole. It can be expressed as follows:

$$\beta_i \approx \frac{R_i - R_f}{R_m - R_f}$$

where β_i = the coefficient of the i-th share, R_i its return, R_m the market return and R_f the return from a risk free investment.

The hypothesis is set as follows:

H2.4 There is no relationship between the intrapreneurship factors and an organisation's perceived risk.

9.4.2.5 Employee productivity

The concept of productivity is described by Probart (1980: 6) as the relationship between outputs and inputs of a system expressed in real physical forms. Hershauer and Ruth (1978: 80) propose a worker productivity model focusing on the individual worker. From their model, the simplified ratio of total output (turnover)/total input (in this case employees) is drawn.

One can hypothesise that higher productivity ratios will be found in organisations with higher levels of intrapreneurship. From this flows the following hypothesis.

H2.5 There is no relationship between the intrapreneurship factors and an organisation's employee productivity.

9.4.3 Testing Hypothesis 2

Normality tests indicated that the data were not suitable for parametric testing. The non-parametric Spearman's rank-order correlation coefficient testing was therefore used to test the hypothesis. The results of the tests are listed in Table 9.3

Table 9.5 Spearman's rank-order correlation coefficients indicating the relationship between the intrapreneurship key factors and contextual variables (N=86)

	Innovativeness		Proactiveness		Management	
	<i>r</i>	<i>Sig.</i>	<i>r</i>	<i>Sig.</i>	<i>r</i>	<i>Sig.</i>
Age	-.102	.352	-.251*	.020	-.180	.098
Turnover	.175	.106	.041	.710	.059	.592
Employees	.137	.208	-.122	.265	.082	.451
Beta	.103	.347	.275*	.010	.323*	.002
Employee Productivity	.081	.457	.210	.053	.092	.400

* indicates significant correlation

The results of the hypotheses testing are:

Null hypotheses accepted:

H2.2, H.2.3 and H2.5

There is no relation between the intrapreneurship factors and organisational size and simplified employee productivity

Null hypotheses rejected:

H2.1 and H2.4

There is a relationship between the intrapreneurship factors and organisational age as well as an organisation's Beta.

9.5 Conclusions drawn from the research results and contributions of the study

9.5.1 Main research model

In the conceptualisation stage of the research, a final intrapreneurship model, consisting of the key factors communication, strategy, structure, management's influence, environment, risk-taking, innovativeness and proactiveness was anticipated. The final model (depicted in Figure 8.3) that materialised consisted of only three key factors or primary building blocks, namely, proactiveness, innovativeness, and management's influence on structures, processes, and relations. Two key factors primarily represent an outward posture and one an inward posture. The two key factors projecting outwards, innovativeness and proactiveness, were taken from the well-researched work of Khandwalla (1977), Knight (1997), Miller and Friesen (1984), Covin and Slevin (1989) and Antoncic and Hisrich (2001). These two factors encompass changes to product lines, changes to products, R&D leadership, new techniques, the organisation's competitive posture, risk-taking propensity, environmental boldness and the decision-making style relating to competition.

The third key factor, management (detail noted in Section 8.4.2.3) is the contribution of this study, and it represents management's influence on intrapreneurship internally, especially in terms of structures and processes, and internal relations. This key factor represents an enrichment that can be added to any of the popular models of intrapreneurship.

The key factor management represents ten dimensions of intrapreneurship namely goals, creativity and innovation systems, rewards, *intracapital*, communication, staff input, intrapreneurial freedom, problem solving culture, intrapreneurship championing and staff empowerment.

9.5.2 The relationship between financial performance and the intrapreneurship model

It was the main goal of this research to examine the relationship between the model and a calculated financial index that would represent an organisation's performance. This goal originates from the belief that entrepreneurial activity could result in positive increases in financial performance. The work done by Zahra (1986) and especially Covin and Slevin (1986) had to be examined in the South African context. They found a moderate correlation of $r = .39$ ($p < .001$) between entrepreneurial posture and a financial performance scale. When tested individually, there are significant (at a $p < .01$ level) correlations between the financial index and key factors with $r = .344$ for innovativeness and $r = .375$ for proactiveness. The contribution of this research added to this, in that the correlation for management was $r = .416$. Cognisance must be taken of the fact that the major predictor of financial performance, according to the linear regression model (Section 9.4.1.3), is the key factor management. The individual dimensions that constitute the key factor management are briefly discussed below to ascertain their individual contribution.

To assist in the interpretation of the key factor management, a principal component factor analysis was done on the raw data that represent the key factor. The raw data set was examined for its suitability for factor analysis. The Kaiser-Meyer-Olkin measure of sampling is $.841$. The proximity to 1 indicates the suitability of the data for factor analysis. This is confirmed by Bartlett's test of sphericity, which is significant at $.000$. The resulting component matrix is detailed below in Table 9.4.

Table 9.6 Component matrix for management

Dimension	Item correlation
Goals setting	.891
Innovation and creativity systems	.714
Rewards	.934
<i>Intracapital</i> system	.871
Communication	.884
Staff input	.737
Intrapreneurial freedom	.702
Problem solving	.706
Intrapreneurial championing	.672
Empowerment	.722

Goal setting loads .891 on the key factor. Demanding management is sometimes seen as applying pressure. However, cognisance must be taken of the work of Faul (1986) that establishes the link between goal-orientated pressure and productivity. Intrapreneurial dimensions (such as innovative behaviour) should be included in the setting of goals.

Innovation and creativity systems load .714 on the key factor. The literature study has shown that intrapreneurial organisations manage innovation and creativity. Organisations should implement systems that would allow the development and active support of creativity and innovation. These systems should furthermore allow for the prudent assessment and evaluation of new ideas.

Rewards loads .934 on the key factor. This dimension points to the rewarding of appropriate innovative behaviour in intrapreneurial organisations.

Intracapital loads .871 on the key factor. *Intracapital* denotes the specific and procedural management of capital expenditure for intrapreneurship projects or ventures. It takes cognisance of, and discounts risk before expending the capital.

Communication loads .844 on the key factor. Intrapreneurial communication points to free and open communication, in which ideas are shared and information is freely exchanged.

Staff input loads .737 on the key factor. Input into the organisation's and management's decisions, work methodology, views, to name but a few, could lead to richer decisions (of management) that are thus more informed and this could lead to more profitable results. An example is the inclusion of collective intelligence in business planning. Collective intelligence is the sum of the observations and contact of all personnel rather than only a few analysts. In a hypothetical instance a member of staff involved in marketing can add value to the planning processes with his or her observations at the 'coal face'. Similarly, engineering staff might propose a simple solution to a production problem, which could otherwise be expensive to the organisation. As such it is possible to conceptualise the correlation between staff input and financial performance.

Intrapreneurial freedom and empowerment, as detailed in Section 8.4.2.3 loads .702 and .722 respectively on the key factor. It embodies the ability of staff to make certain decisions, to contribute to innovations, and to add to ideas and suggestions through their creativity. In some instances it can also imply the involvement in venturing. This wider concept or

dimension touches on virtually every area within the organisation (production, human resource management, etc.) and therefore it could have an effect on performance.

Problem solving culture loads .706 on the key factor. It embodies an organisation's collective will to find answers to problems, and to contribute to solutions as individuals and as groups. It is the opposite of simply accepting circumstances, which is looking for optimisation and excellence. It points to a spirit of dynamism in the organisation. The findings of the study concur with Faul (1986) that a problem solving culture contributes to financial performance.

Executive championing of intrapreneurship is a very important dimension of the key factor management. This dimension loads .672 on the key factor. The dimension alludes to intrapreneurship in the wider context, and consequently explains a portion of the correlation between management and organisations' financial performance. An executive cannot champion intrapreneurship by simply verbalising understanding and support. It includes the actions of the executive in his subscription to intrapreneurship. It is associated with the direct support of all the elements that constitute intrapreneurship including the structuring of the organisation, systems and processes to facilitate intrapreneurship and financial support. It will also set the tone for risk affinity or risk aversion, which in turn will influence innovative behaviour.

In the early chapters of this study, the researcher stated that even though an organisation might be intrapreneurial in terms of its posture, many opportunities would be lost if internal conditions were not conducive to intrapreneurship. A typical example of this could be when an organisation wants to compete aggressively in terms of its market share, but loses

opportunities because of internal factors such as the potential of its employees remaining unharnessed, or because there is little communication between management and staff. The correlation found between financial performance and management's internal influence, points to the fact that organisations could add to their financial performance by implementing the proposed model.

The topic of the influence of leaders on organisational outcomes is well researched. The work Baum et al. (1998), House, Spangler and Woycke (1991), Smith, Carson and Alexander (1984), House and Singh (1987), Day and Lord (1988), Barling, Weber and Kelloway (1996) and, Love and Kirckpatrick (1998) indicate that positive organisational outcomes can be associated with higher levels of leadership. This study provides additional support for this, and contributes to current understanding by indicating the positive relationship between the intrapreneurship factors, specifically management's influence (viewed internally), and financial performance.

9.5.3 Intrapreneurship in context

9.5.3.1 Age

The question was asked in the beginning of this chapter if the size, age and risk profiles of organisations would have bearing on the intrapreneurship factors found in the organisations. One could postulate, without empirical knowledge, that older and larger organisations are less likely to be intrapreneurial. The results of the statistical analysis that tested these postulations established that significant negative correlation exists between an organisation's proactiveness and age but not between age and the organisation's innovativeness.

As stated in the previous section the proposed intrapreneurship model consists of three key factors. Two represent an outward intrapreneurial posture ('external') and one concentrates on the internal workings ('internal') of an organisation. The two 'external' factors are innovativeness and proactiveness. Innovativeness measures the number of product lines, product changes and R&D leadership and new techniques. Proactiveness concentrates on the organisation's competitive posture, risk-taking propensity, environmental boldness and decision-making style, specifically in terms of competition.

It was expected that the first key factor, innovativeness should have negative correlation with organisational age as organisations become less innovative at the later stages of organisational evolution. This expectation is confirmed by the views of Chandler (1962), Mintzberg and Waters (1982), and Adizes (1988) on the matter. The findings however indicated a lack of significant correlation in which older organisations would be less innovative. This could possibly be explained by taking cognisance of the type of intrapreneurship (and specifically the innovation element thereof) examined and by contextualising it.

As a first point of departure it should be noted that although there is only significant negative correlation between the key factor proactiveness and organisational age there is also negative, (but non-significant) correlation between the key factors innovativeness and management, and organisational age – which confirms the expected direction of the relationship. The fact that the correlation is not significant implies that some of the older organisations are less innovative and less orientated towards intrapreneurship in respect of its management's behaviour, but others not.

The reason for this apparently dichotomous result could possibly lie in the fact that the type of innovativeness examined in the study, as stated in Section 7.2 is generic in nature. The study did not compensate for the variations produced by the wide range of entrepreneurial characteristics and new venture phenomena, which come into effect in these instances.

Gartner *et al.* (1989: 170) confirms this by suggesting that there are not 'average' situations during venturing. The study also did not account for the specific stage of the growth cycle in which ventures within corporation found themselves, which could have influenced the result.

Cognisance must furthermore be taken of the fact that the corporate level intrapreneurship measurement of the study did not take the effects of entrepreneurship on a subsidiary level into account. Birkinshaw (1999), and Doz and Prahalad (1981) stress the fact that a number of differences can be found in subsidiary entrepreneurship compared to corporate intrapreneurship. Greater levels of autonomy of subsidiaries for example, could have profound effect on entrepreneurship. The lack of significant correlation of both innovativeness and management allude to this. It could also be possible that in some organisations there are greater autonomy of decision making for subsidiaries whereas in others there are not. Furthermore, it could be possible that in some organisations there are levels of autonomy which allow proactive behaviour but which restrict the capital required for innovation in venturing. Zahra *et al.* (2000: 22) confirm this possibility in that they found negative, but not statistically significant correlation between subsidiary entrepreneurship and age in a study that examined subsidiary entrepreneurship.

9.5.3.2 Size

The statistical analysis found that there is no significant correlation between the key factors and organisation size, represented by turnover or employee count. This unexpected result necessitates further analysis and discussion.

As a first step, it was decided to examine the relationship between organisational size and intrapreneurship using a different measure for size. A number of authors that researched intrapreneurship determined organisational size with measures other than number of employees and turnover for example number and size of subsidiaries (Engelhoff, 1984) or assets (Mansfield, 1963). The asset base of each organisation is known and the relationship between organisational size, as measured by its assets as at the year 2000, and the intrapreneurship key factors was therefore examined.

Normality tests indicated that the data were not suitable for parametric testing. The non-parametric Spearman's rank-order correlation coefficient testing was therefore used to test the hypothesis. The results of the tests are listed in Table 9.7

Table 9.7 Spearman's rank-order correlation coefficients indicating the relationship between the intrapreneurship key factors and size (measured by assets) (N=86)

	Innovativeness		Proactiveness		Management	
	<i>r</i>	<i>Sig.</i>	<i>r</i>	<i>Sig.</i>	<i>r</i>	<i>Sig.</i>
Size	.138	.202	.080	.466	.104	.341

The results again confirmed that there is not a significant relationship between organisational size and the key factors. As second step the literature was re-examined for anomalies in respect of research findings about intrapreneurship and organisational age.

The literature is indicative of varied opinions in respect of the relationship between organisational size and intrapreneurship. Aldrich and Auster (1986), Jones and Butler (1992), Ettie (1983) and, Dougherty (1990) indicate that larger size could be a liability to intrapreneurship in organisations, because of the sheer number of employees, infrastructure and equity, that could cause organisations to be less flexible in responding to opportunities. Small organisations may also be more flexible in respect of adjusting research plans or in the implementation of innovations. Small organisations may also be more flexible in their compensation policy, specifically in rewarding innovative effort.

Opposed to this is the view that larger organisational size is linked to higher levels of intrapreneurship (specifically innovation). The foundation of this view can be found in the Schumpeterian hypothesis. Schumpeter argues that economic growth occurs through the process of 'creative destruction' in which the old industrial structure, its product, process or its organisational form, is continually changed by 'new' innovative industrial activity. According to Schumpeter, large organisation size is essential to such innovative activity, which he views as being entrepreneurial (Jennings, 1996:1). Schumpeter argues that larger organisations provide economies of scale, which makes sufficient resources available for innovation. This view is shared by Romanelli (1987), Zahra (1993a) and, Bloodgood, Sapienza and Almeida (1995) who believe that organisational size can be indicative of the organisation's resource base, which could facilitate intrapreneurship. Larger organisations could have stronger cash flows to fund innovation. Larger turnovers also implies that the

costs of innovations could be spread over the larger sales base. This view is supported by Galbraith (1982) who believes that larger organisational size favours innovation because of the sheer cost of innovation. Larger organisations may furthermore have access to a wider range of human capital skills than small organisations. This in turn would allow higher rates of innovation. From the above it can be proposed that the relative strengths of large organisations are predominantly material. Nooteboom (1994: 327) confirms this by stating that the strengths of large organisations lie in economies of scale and scope, more and cheaper financial resources, possibilities of risk spreading, and greater capacity for specialisation, in people as well as equipment.

However, Jennings (1996: 1) points out that a number of authors believe that the stressing of entrepreneurial activity of large organisations is unfounded (Kamine and Schwartz (1975), Mansfield (1963), Scherer (1965), and Tushman and Nelson (1990)). He furthermore stresses that Kamine and Schwartz's (1975) review of a number of studies failed to support the hypothesis that larger organisational size can be linked to higher levels of intrapreneurship. Cognisance must also be taken of the fact that Schumpeter defined intrapreneurship around innovations alone. Kamine and Schwartz (1975) note that studies that failed to support the Schumpeterian hypothesis, measured innovative activity by some absolute index such as R&D expenditure Jennings (1996: 2). It should be noted that this study used the ENTRESALE in which innovativeness is also measured in terms of absolutes.

Vossen (1996) believes that the answer to higher intrapreneurship levels lie in the combination of the relative advantages of small and large organisations. His summary of the relative strengths of organisations is depicted in Table 9.7 below.

Table 9.8 Relative advantages of small and large organisations

Small organisations	Large organisations
Little bureaucracy	Formal management skills
Rapid decision making	Able to control complex organisations
Risk taking	Can spread risk over products or portfolios
Motivated and committed management	Functional expertise in staff functionaries
Motivated labour	More specialised labour
Rapid and effective communication, shorter chains	Time and resources to establish comprehensive external science and technology networks
Fast reaction to changing market requirements	Comprehensive distribution and servicing facilities
Can dominate narrow market niches	High power with existing products
R&D efficiency	Economies of scale and scope in R&D
	Can support large R&D laboratories
	Access to external capital
Capacity for customisation	Better able to fund diversification, synergy
Capable of fast learning and adapting routines and strategy	Able to obtain learning curve economies through investment in production
	Capacity for absorption of new knowledge / technology
Appropriation of rewards from innovation through tacitness of knowledge	Able to erect entry barriers

Source: Vossen (1996: 5)

The opposed views on the relationship between organisational size and intrapreneurship, as well as the finding of this study that age does not necessarily influence intrapreneurship, can possibly be understood through Baron's (1999) viewpoint that entrepreneurship is a behavioural trait that can be acquired through training and implementation, unlike intelligence. Interpreted for corporate environments, its counterpart intrapreneurship can thus be implemented in organisations of any size.

Employee productivity, which is defined here as the simple function of turnover and number of employees, will per implication, also not show a significant correlation with the key factors.

9.5.3.3 Beta

The perceived risk profile calculated by the volatility measure, the Beta coefficient (β) correlates positively with two of the three key factors. Proactiveness and management's correlations with the Beta are significant. Organisations that can thus be described as more intrapreneurial could have higher Beta coefficients. It stands to reason that an organisation, which for example has a higher risk-taking propensity, will be seen as more 'risky' relative to the market in which it operates, and thus the resultant correlation.

This finding confirms the issue of risk aversion. The literature study belaboured the fact that a number of misconceptions exist about entrepreneurs (and as such also about intrapreneurs). The most common is that entrepreneurs are seen as risk-takers or exhibitors of 'risky' behaviour. This view can be related to a similar view of organisations. Organisations that are bold, do take risks (through venturing), and if they are aggressive in their competitive posture, they can be perceived as risky and this will be displayed through the volatility of their shares. However, the literature established that these elements constitute in part intrapreneurship and that intrapreneurship is necessary as a strategy to survive and excel in business (Struwig: 1991). The need to re-educate the market about entrepreneurs, and specifically the fact that entrepreneurs manage risk rather than just take risks, could also be proposed in terms of the assessment of the perceived risk of shares. Such a re-education process could result in the decreased volatility of a specific company's share because the expected future cash flows,

which are reflected in the share prices, are seen as stable. It is important to highlight the so-called 'parameterised intrapreneurship' in which the need for control (inclusive of risk management) is balanced with intrapreneurial freedom. Similarly understanding and communication of internal intrapreneurship systems, which contain and manage risk, can help to improve understanding intrapreneurial organisations. Examples of the elements of internal intrapreneurial systems that are highlighted in the study are *Intracapital* systems, and systems for the management of innovations and creativity.

In conclusion, cognisance must be taken of the work of Leneux *et al.* (1995) who researched the relationship between growth (and the expected return on investment) and systemic risk or the Beta. They found, after adjusting for investor 'over-reaction' (growth unduly affected by investors' observations of recent growth rates) that high Betas correlate with high growth. Growth can also be associated with intrapreneurship. The finding of this study that there is significant correlation between the Betas and the intrapreneurship key factors, contributes to the understanding of systemic risk.

9.6 Summary

This chapter tested the hypothesis that were set and found that there is a relationship between the intrapreneurship model and financial performance. Although the model only explains a percentage of total financial performance, its implementation could have an impact on an organisation's financial performance. The chapter also examined the elements of the intrapreneurship model in different organisational profiles and found a correlation between the perceived risk profile of the organisation and two of the three key factors that constitute

the intrapreneurship model. It furthermore found a negative correlation between an organisation's age and its proactiveness.

The next chapter will conclude the study. The research will be summarised and recommendations will be made to aid further study of intrapreneurship.

CHAPTER 10

RESULTS OBTAINED, CONCLUSIONS AND RECOMMENDATIONS

10.1 Introduction

This chapter concludes the research process by summarising the research and the results obtained. It describes a practical model that could contribute to the nurturing of intrapreneurship in industrial organisations, and concludes with recommendations for future research.

10.2 The research problem

The main goal of this study has been to enrich current thoughts on intrapreneurship and with that enrichment establish if fostering intrapreneurship in industrial organisations would result in financial benefit. These research questions resulted in two main hypotheses, which were subjected to statistical testing as described in Chapter Nine of this study.

The intuitive enrichment of current modelling of intrapreneurship was to be found in organisations' internal workings. To develop thoughts on this, a literature study was embarked on.

10.3 The review of the literature

The review of literature especially on entrepreneurship, intrapreneurship, creativity and innovation, revealed dimensions that the researcher felt would add to the current modelling of

intrapreneurship. A multi-dimensional model was proposed that would consist of two main constructs, intrapreneurship seen from an internal perspective and intrapreneurship with its external focus. It was proposed that the external construct would be derived from well-researched and internationally tested models. The review of the literature resulted in a number of dimensions that underlay the internally focused construct.

Management style and orientation was included because of management's influence on methodologies, culture and the internal environment. Specific elements were accentuated in this, for example management's need for control and innovation experience.

Communications featured prominently because especially shared, open and non-territorial communication in particular, was found to be crucial to the success of intrapreneurship.

The dimension environment was included to represent internal fostering of intrapreneurship.

Organisational structures and their components were included, as it was felt that these could seriously inhibit intrapreneurship when rigid.

Previous research showed that the inclusion of intrapreneurial elements in the setting of strategy would benefit organisations. This was therefore also included in the model.

Because of the perceived association of risk with entrepreneurship, this was also included as a dimension.

Lastly the elements of creativity and the resultant innovation, feature strongly in the literature. These were therefore also included in the model.

10.4 Financial performance

The main rationale behind the study was to propose a model for intrapreneurship that would assist with the goal of industrial organisations to produce positive financial outcomes and thus shareholder wealth. This rationale presented a challenge in the selection of a measure for organisational performance.

There are many models used to measure performance. Capon, Farley and Hoenig (1990), for example suggest growth in assets and sales as well as market share and organisation size. Antoncic and Hisrich (2001) prefer to use a composite, taking into account return on sales, average return on assets and average return on equity. Zahra (1995) proposes a combination of ratios based on employee productivity, sales to assets and return on investment. De Castro and Chrisman (1995) prefer to use return on investment.

Because of the South African origin and relation to the performance measures described above, it was decided to use the composite measure proposed by Van der Post (1997). The measure is calculated from return on average equity, return on average assets, total asset growth and share return. The data for this measure were obtained for the Bureau for Financial Analysis, a company jointly owned by the University and private investors.

A composite measure could be calculated for a total of 236 companies listed on the Industrial Sector of the Johannesburg Stock Exchange. Data for each of the components of the measure

were obtained. The resultant four datasets were then subjected to factor analysis. This resulted in the emergence of one factor. The individual loadings of components on this factor were then used to formulate the final composite measure.

10.5 Development of an instrument to measure intrapreneurship

The literature study resulted in proposed elements for an intrapreneurship model. As stated, it was decided to examine the external component of the model with an internationally tested questionnaire. To test the internal component of the model, a questionnaire had to be developed. A Likert-type scale ranging from 1 to 7 was used in the questionnaire.

Approximately half the questions were stated positively and half the questions negatively.

The initial testing of the questionnaire resulted in the number of questions being reduced to 135. This questionnaire was administered to a convenience sample of five organisations and 400 employees, resulting in 166 usable questionnaires.

During the examination of the data, a number of statistical problems were rectified, and 64 items of the 135 questions were retained for final factor analysis. This factor analysis resulted in the emergence of one factor namely: Management's influence on structures and processes, and relations. This factor is combined with the two classical factors, proactiveness and innovativeness to form the intrapreneurship model of the study. The intrapreneurship model is graphically illustrated below in Figure 10.1

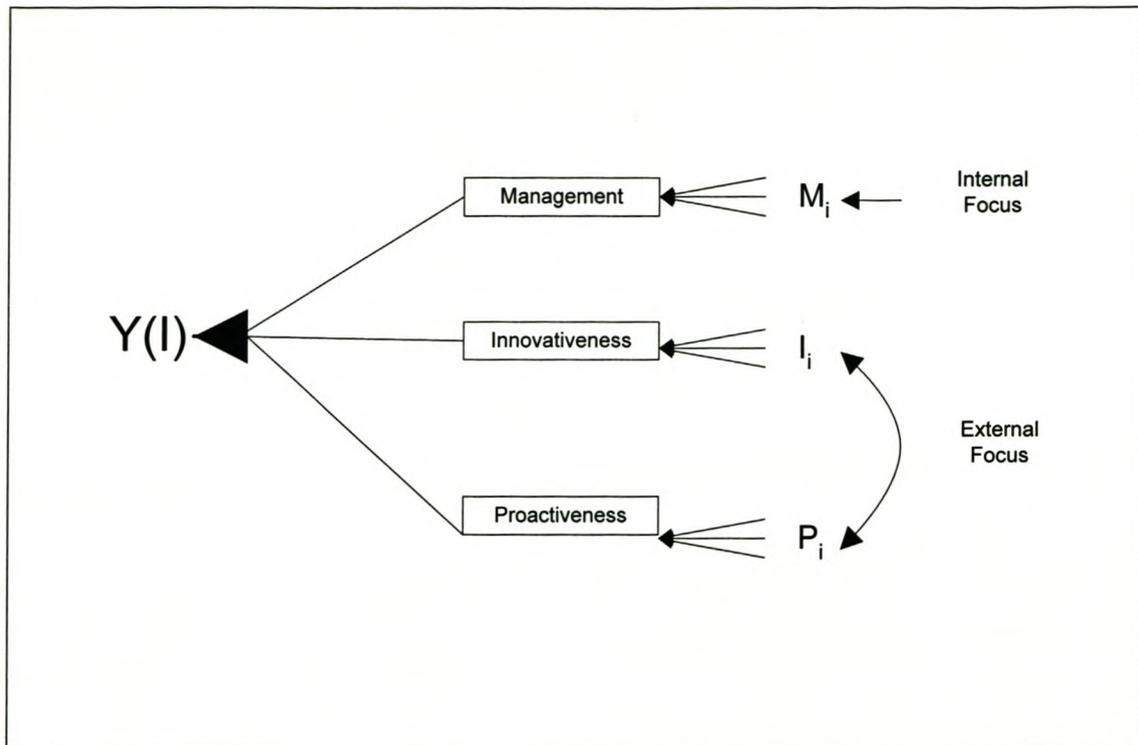


Figure 10.1 The intrapreneurship model

Ten items that loaded the strongest on the factor management were selected for inclusion in the final questionnaire. Added to the original eight questions of the ENTRESALE this resulted in a final questionnaire with 18 items. This questionnaire was used to survey the proposed model for intrapreneurship. In the model, the construct intrapreneurship is represented by three dimensions or key factors, namely, innovativeness, proactiveness and management.

The final questionnaire was eventually administered to an executive member of staff of the qualifying 219 organisations, and 109 questionnaires were returned. Of these 86 could be used in the final statistical analysis.

10.6 The statistical relationships

After the data had been examined, the main hypothesis was tested. It was established with linear regression that a relationship between the financial index and the key factor management exists. The data were then subjected to Spearman's rank order correlation testing, and the correlation coefficients were computed. These indicate the direction and the strength of the relationships between the financial index and the key factors. Moderate but significant correlations were found.

Intrapreneurship in context was then examined by the addition of the contextual variables organisational age, size and the Beta coefficient of the listed shares. The relationships between these contextual variables and the intrapreneurship key factors were examined. The Kolmogorov-Smirnov test of normality indicated the use of a non-parametric test to determine differences. Spearman's rank order correlation testing was used. The analysis indicated a significant negative correlation between organisational age and the key factor Proactiveness. It was also found that the Beta coefficient (β) computed for organisations to establish the volatility of that organisation's share relative to the market, correlated with intrapreneurship, and specifically the components proactiveness and management.

10.7 Implications for future research and recommendations

10.7.1 Planning period

This study focused on the short- to medium-term planning period of three years. The philosophy of management that resulted in a financial index as at the year 2000 was measured at a given point. Future research could focus on a longitudinal study to observe changes in the

application of the model and their effects on the index. Similarly, it would be more prudent to first measure the model, observe changes during the planning period, and then calculate the financial index.

10.7.2 Non-financial outcomes

The focus of this study has been the financial outcome of intrapreneurship. It is, however, the belief of the researcher that this is not the only potential positive outcome of installed intrapreneurship. During a visit to the 3M organisation in the United States of America (an organisation well known for its intrapreneurial efforts), work satisfaction, employee stability and a general sense of well-being were evident. It can therefore be postulated that this study's contribution in terms of intrapreneurship modelling will also result in positive effects in the human resource area of organisations. Future study could research this.

10.7.3 Entrepreneurial intensity

Morris (Morris and Sexton, 1996) proposed an intrapreneurship model called Entrepreneurial Intensity. In this model, underlying attitudes and behaviours are measured on a dual-axis scale in terms of frequency and degree. The concept of entrepreneurial intensity was beyond the scope of this study but could be included in future research. This work of Morrison will then introduce another dimension with the following categories of intensity:

- Continuous/ Incremental
- Revolutionary
- Periodic/ Incremental
- Periodic/ Discontinuous

10.7.4 Productivity

It is generally accepted that high levels of intrapreneurship should lead to an improvement in productivity. The finding of this study that there is no significant correlation between the intrapreneurship factors and productivity could be investigated. Chapter Nine proposes that the measurement used in the study, that of the simple ratio of turnover per employee is not adequate and it distorts the results. It is proposed that a more sophisticated model is used for the measurement. Faul's review (1986: 4.1) of productivity literature may be helpful. Faul reviews the productivity models of Porter and Lawler (1968), Lawler (1971), Porter, Lawler and Hackman (1975) and Orpen (1976). Similarly the proposal of Hershauer and Ruth (1978) to use a 'servosystem' of productivity rather than simplified measurements may be helpful. Craig and Harris (1973) also propose a composite model in which total productivity is a function of labour, capital, input materials, other goods and services and total output.

10.7.5 Intrapreneurship context

A last area of concern is the unexpected relationship between the key factor innovativeness and various contexts. The study viewed intrapreneurship as a generic concept and did not compensate for the possible effects of the stages of business growth on intrapreneurship and it furthermore did not take cognisance of subsidiary entrepreneurship. Future research could investigate this issue.

10.7.6 Beta

During the review of the literature it was established that the relationship between intrapreneurship and the measure of share volatility, the Beta, is not well researched. Future research could focus on this relationship. MARIMA (Multivariate Autoregressive Integrated Moving Average) models could also be included in such a study as they could improve on the estimation of the systemic risk component of shares (Craig and Bendixen, 1998: 10).

10.7.7 Conclusion

This study is a small contribution to the widely interpreted subject of intrapreneurship. There are several limitations to the proposed model. Firstly, despite a generic view (by choosing the Industrial Sector of the Johannesburg Stock Exchange which includes a wide variety of organisations), intrapreneurship was only examined in terms of a portion of organisations in South Africa. Secondly, the model was deliberately constructed to aid in the research process. Whereas only three key factors comprise the model, thorough longitudinal research might have resulted in a more comprehensive model. It was the intention of the research process to add to the current body of intrapreneurship knowledge rather than propose a definitive model. Thirdly, while the proposed model clearly specifies the key factors or variables, they all represent very broad constructs that are general in nature. The internal environment, for example, can be defined in terms of elements that are too numerous to include practically in the model. Lastly, to judge organisations as entrepreneurial or not is a misapplication of the construct Entrepreneurship. According to Covin and Slevin (1991: 20) this is a rather

meaningful assertion based on the fact that organisations, like individuals, can create new value for society through thoughtful and productive assemblage of resources.

Only a small portion of variance in financial performance is explained in this study.

Performance is a multidimensional construct, with little consensus existing about its nature. It was however, the goal of this study to add to the research on intrapreneurship as a predictor of an organisation's financial performance.

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APPENDIX A**VARIABLES AUTHORS AND ITEMS**

This appendix outlines each variable and its relevant items that have been gleaned from the literature. The variable, relevant chapters, authors and the resulting items are tabled. From this matrix, the resulting research model and the preliminary item pool (Appendix B) were constructed.

Variable	Chapter	Author	Item
Communication	3	Bhave, Stopford and Badenfuller.	Operational feedback in venture creation.
	3	Nickholson.	Open, sharing communication.
	4	Majaro.	Remove poor lateral communication. No hierarchical communication.
	4	Majaro.	Create procedures for managing innovation. Have effective communication of ideas.
	5	Goosen, Faul.	Information exchange.
	6	Cornwell and Perlman.	Flexible communication structures, services all.
	6	Kurato, Pinchot, Pyor and Shays, Fry, Ducan, Brazeal, Sathe, Gardiner and Whily, Stevenson and Jarillo.	Constant Feedback; share ideas
	3	Nickholson.	Free communication. No 'turf'; synergism.

Variable	Chapter	Author	Item
Innovation and creativity.	4	Gretz and Drozdeck.	Natural ability can be developed.
	4	Robert and Weis.	Practical search for, and prudent assessment of opportunities.
	4	Martello.	Serendipity.
	4	Albrecht.	Create process model (absorption, refine, sell).
	4	Majaro.	Create procedures for managing innovation.
	5	Kolchin and Hyclak.	Promote different types of innovation in all areas of organisation e.g. products, services, systems. Resources; productivity systems; new markets; new methodologies.
	5	Pearson.	Innovation is progressive and focussed.
	6	Cornwell and Perlman.	Value innovation and creativity; support structure for new ideas.

Variable	Chapter	Author	Item
Management style and orientation; risk.	2	Baron.	Create conditions for/ allow - future orientation; learning company; self-efficacy; develop social skills (social perception; social influence; impression; management, adaptability). Help against – planning fallacy; affect infusion; heuristic processing.
	2	Robert and Weis.	Allow input from below; trust.
	6	De Coning, Robert and Weis (2) Block and MacMillan, Sathé, Sykes, Burgelman Quinn, Kanter, Bird, Sykes and Block Cornwell and Perlman, Kao.	Risk adverseness, tolerance of failure protect against risk.
	2	Robert and Weis, Hisrich and Peters, Sykes, Sounder, Sykes and Block, MacMillan, Quinn, Cornwell and Perlman, Kao, Pinchot.	Need, for control, innovation experience, and goal setting. Democratic style; people focus. Management support for -; development of-.
	3	Pinchot, Robert and Weis.	Driver for entrepreneurship, Champion of entrepreneurship.
	3	Nickholson.	Allow freedom to pursue ideas - all disciplines.
	4	Majaro.	Don't over control; facilitate creativity.
	4	Gretz and Drozdeck.	Culture by management will determine levels of innovation.
	4	Barr.	Policies and procedures of management determine entrepreneurship.
	5	Reilly and Di Angelo.	Early identify entrepreneurs; sponsorship; give discretionary powers.

Variable	Chapter	Author	Item
	6	De Coning.	Envision and inspire employees; role model; responsibility; support efforts; coach and mentor.
	6	Sathe.	Don't use traditional management approaches and financial control to monitor entrepreneurship.
	4	Cornwell and Perlman.	Culture of empowerment; people most important. Everyone contribute to decision-making; culture driver.

Variable	Chapter	Author	Item
Environment.	2	Tropman and Morningstar, Fry, Sathe, Block and Ornati Scalan, Sounder, Kanter Cornwell and Perlman, Kao, Pinchot, De Coning.	Use rewards in innovation environment.
	1	Faul, Goosen.	Experimenting culture.
	3	Herron.	Develop innovation skill and aptitudes.
	4	Majaro.	Creative climate.
	5	Drucker.	Innovation is hard work, but can be learned.
	5	Quinn.	Interactive learning. Multiple approaches, atmosphere and vision.
	5	Paper and Johnson.	Receptive organisational climate; ensure ideas are produced.
	6	Cornwell and Perlman, De Coning.	Proper organisational support for innovation; internal environment conducive towards-. Innovation, rewards and recognition.
	6	Tropman and Morningstar, Cornwell and Perlman.	Learning culture; scanning processes. Opportunities must be part of culture.
	6	Kurato, Pinchot, Pryor and Skays, Fry, Ducan, Brazeal Sathe, Gardiner and Whitney Stenvenson and Jarillo, Cornwell and Perlman.	Deploy teams; freedom and empowerment; <i>intracapital</i> .
	3	Nickholson.	No defined 'turfs'.
	4	Martello.	Serendipity practised and encouraged.
	6	De Coning, Mac Millan, Sathe, Sykes, Burgelman Quinn, Kanter, Bird, Sykes and Block, Cornwell and Perlman, Kao.	Risk adverseness; tolerance of failure; protect against risk. Trust employees.

Variable	Chapter	Author	Item
Strategy.	2	Robert and Weis.	Develop specific strategy to learn, develop, practise and communicate entrepreneurship. Administration strategy - allow resource distribution.
	2	Boyett and Finlay.	Entrepreneurship has long-term vision.
	3	Kanter.	Provide seed/ <i>intracapital</i> .
	3	Nickholson.	Create venture model in strategy; seek new ventures.
	3	Fry, Sathe, Block and Ornati, Scalon, Sounder, Kanter, Cornwell and Perlman, Kao, Pinchot, De Coning.	Systematic planning for innovation. Couple rewards to entrepreneurship strategy.
	1	Struwig.	Employ entrepreneurship as strategy, adaptation.
	5	Higgins, Nickholson.	Innovation strategy is a survival strategy. (Product and process innovation).
	6	Cornwell and Perlman.	Long-term strategy, look to future. Emphasise new ideas. Goal support for innovation.

Variable	Chapter	Author	Item
Structures	3	Nickholson.	Create generic structures to promote innovation (e.g. pacing plus program).
	3	Sathe, Von Hippel, Sounder, Sykes, Hirsch and Peters, Katz and Gradiner, Kater, Syks and Block, Cornwell and Perlman, Kao, Pinchot, De Coning.	Create structure for resource allocation; <i>intracapital</i> .
	3	Jolly and Kayama, Kamm, Slevin and Covin.	Create venture structures; task forces; project teams.
	4	Majaro.	Remove bureaucracy; develop structures which will facilitate creativity; informal structures.
	5	Quinn.	Flat, informal organisations are innovators.
	5	Paper and Johnson.	Install proper education system for innovation and creativity.
	6	Tropman and Morningstar.	Structures should support entrepreneurship strategy.
	6	De Coning.	Integrate sub-systems e.g. top management, organisation and employees. Decentralised decision-making; wide job descriptions.

APPENDIX B**THE PRELIMINARY ITEM POOL**

This appendix describes each of the identified variables (as depicted in Appendix A) with its items. Four questions, two positive and two negative, were selected for the measurement of each dimension. Column 1 describes the variable. Column 2 indicates whether the question is phrased positively or negatively. Column 3 notes the question number and Column 4 poses the question.

Variable and Rationale	Positive / Negative	Number	Item
1. Management style and orientation.			
In this variable the specific style and orientation of management are explored. Management has immense influence on methodologies, culture and the environment. They not only set the tone for intrapreneurship, but also can actively promote or boycott it. Non –participation and non-championing scuttles intrapreneurial efforts.			
1.1 Need for control Reason: This would denote over- or acceptable levels of control, which in turn would facilitate, or not, intrapreneurship within the organisation. Pressure in control is seen as promoting productivity, but over-control destroys intrapreneurial freedom.	-	1.1.1	Management asks questions to catch workers out.
	+	1.1.2	Management trusts the staff.
	-	1.1.3	Management is over cautious.
	+	1.1.4	I have freedom to explore new ideas.
1.2. Innovation experience Reason: This dimension indicates the extent of innovation experience of management. It is included because of the principles of learning organisations. It is conceptualised that either positive or negative (adverse)	+	1.2.1	The organisation treats new ideas constructively.
	+	1.2.2	Management is experienced in responding to new opportunities.
	-	1.2.3	There have not been new innovations in the organisation.

Variable and Rationale	Positive / Negative	Number	Item
experiences would have moulded management's behaviour in respect of intrapreneurship.	-	1.2.4	So-called 'innovations' have been a disaster in the organisation.
1.3. Goal setting Reason: Demanding management is sometimes seen as applying goal-orientated pressure. The dimension is included because goal-orientated pressure can be linked to productivity (Faul, 1986). However, if too much pressure is applied, intrapreneurship can be stifled.	+	1.3.1	The members of this organisation are emotionally involved in operations and goals.
	-	1.3.2	Unrealistic goals are set for members of this organisation.
	-	1.3.3	Abnormally high standards are set in this organisation.
	+	1.3.4	Management communicates job requirements very well.
1.4. Democratic style Reason: It is the author's opinion and experience that the key driver of culture and processes in an organisation is management. Autocratic or similar management styles could be negatively correlated to intrapreneurship because it disallows freedom.	+	1.4.1	Suggestions from employees are welcomed in this organisation.
	-	1.4.2	Management never listens to employees.
	-	1.4.3	Management never accepts suggestions.
	+	1.4.4	There is good co-operation between management and employees.
1.5. People focus Reason: The main element in an entrepreneurial process is the human element. Intrapreneurship is about people, their ideas, their skills and them operating within environments. It stands to reason that management's attitude towards human resources could significantly influence intrapreneurship.	+	1.5.1	People are important in this organisation.
	+	1.5.2	Everyone in the organisation is committed and involved.
	-	1.5.3	People hate coming to work.
	-	1.5.4	Individual responsibility in the organisation is not encouraged.

Variable and Rationale	Positive / Negative	Number	Item
<p>1.6. Risk adverseness</p> <p>Reason: The literature illustrated clearly that a risk adverse manager could scuttle the intrapreneurial processes in an organisation. Risk management rather than risk adverseness should be practised. This dimension explores to what extent management allows staff to make mistakes.</p>	<p>-</p> <p>-</p> <p>+</p> <p>+</p>	<p>1.6.1</p> <p>1.6.2</p> <p>1.6.3</p> <p>1.6.4</p>	<p>Employees are not allowed to make mistakes.</p> <p>Emphasis on profit leaves little room for failure.</p> <p>Mistakes are tolerated in this organisation.</p> <p>New ideas that do not work are not acceptable.</p>
<p>1.7. Long-term focus</p> <p>Reason: Because skills are not acquired in relatively short periods, and because it usually takes a long time to change cultures and behaviour, the focus of management should be long term rather than short term. This is especially true of organisations in transformation towards intrapreneurship.</p>	<p>-</p> <p>-</p> <p>-</p> <p>+</p>	<p>1.7.1</p> <p>1.7.2</p> <p>1.7.3</p> <p>1.7.4</p>	<p>Management always chases short-term gains.</p> <p>Immediate results are all that counts in this organisation.</p> <p>Only products that produce results in the long term are acceptable.</p> <p>Changes will not always produce results in the short term.</p>
<p>1.8. Executive championing of intrapreneurship</p> <p>Reason: It has already been stated that management should be the key driver of intrapreneurial processes in an organisation. They should similarly champion the people and the processes. 'If management believes it and supports it, it will happen' is a tested saying in many organisations.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>1.8.1</p> <p>1.8.2</p> <p>1.8.3</p> <p>1.8.4</p>	<p>Top management supports entrepreneurs.</p> <p>Top management always supports new projects and ideas.</p> <p>When the organisation tries something new, management shoots it down.</p> <p>One can never count on the support of top management with new ventures.</p>

Variable and Rationale	Positive / Negative	Number	Item
1.9. Support for intrapreneurship Reason: Management should demonstrate active support for intrapreneurship.	-	1.9.1	Management in general does not want entrepreneurs in this organisation.
	-	1.9.2	One can only try new things in secret.
	+	1.9.3	Management supports all entrepreneurial ideas and actions.
	+	1.9.4	Management is always willing to try new ways of doing business.
1.10. Culture driver of innovation Reason: The core-culture of organisations is created and driven by management. They set the tone and create the ground rules. This dimension explores to what extent management includes innovation and creativity as essential elements of culture.	+	1.10.1	In this organisation, management sets the trend for new things.
	+	1.10.2	Creativity and innovation is part of the organisation's culture.
	-	1.10.3	Only a few people in this organisation are allowed to be creative and innovative.
	-	1.10.4	Management does not encourage creativity.
1.11. Open communicator Reason: Management sets the tone for interaction in organisations. If management is unapproachable, communication will not flow and therefore creativity and innovation will be inhibited.	+	1.11.1	It is easy to talk to any member of management.
	+	1.11.2	Management talks and listens to everyone.
	-	1.11.3	Management cannot be approached easily.
	-	1.11.4	Management in general, does not communicate well.

Variable and Rationale	Positive / Negative	Number	Item
<p>1.12. Corporate vision for intrapreneurship</p> <p>Reason: If management has a vision for intrapreneurship, the organisation will follow. The researcher differentiates between merely 'allowing' intrapreneurship (where it cannot do any damage) and actually having a corporate vision for it.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>1.12.1</p> <p>1.12.2</p> <p>1.12.3</p> <p>1.12.4</p>	<p>This organisation has a corporate vision for entrepreneurs.</p> <p>We see ourselves as entrepreneurs.</p> <p>The goal of promoting entrepreneurs in this organisation has never been communicated.</p> <p>Entrepreneurs cannot work in an organisation.</p>
<p>1.13. Trust</p> <p>Reason: Without trust there will be penalty and suspicion. Intrapreneurial freedom can only flourish in an environment of trust. It should be noted that trust is earned and not just received.</p>	<p>-</p> <p>+</p> <p>+</p> <p>-</p>	<p>1.13.1</p> <p>1.13.2</p> <p>1.13.3</p> <p>1.13.4</p>	<p>Management does not trust new ideas.</p> <p>The trust of management can be gained over time.</p> <p>Employees in this organisation are at ease with new ideas.</p> <p>New directions from management are usually bad for the employees.</p>
<p>1.14 Allow input from below</p> <p>Reason: By taking cognisance of the views and experiences of staff below, management can expedite many organisational events and processes. It is also indicative of a democratic management style.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>1.14.1</p> <p>1.14.2</p> <p>1.14.3</p> <p>1.14.4</p>	<p>Management asks questions to find better ways to do things.</p> <p>My opinion is respected and valued.</p> <p>Management listens but never acts on any suggestion made by employees.</p> <p>Management will never gain by the experience of employees.</p>

Variable and Rationale	Positive / Negative	Number	Item
<p>1.15 Encouragement</p> <p>Reason: The literature illustrated that staff thrive in an environment where encouragement is part of the organisation's culture, especially when new ground is broken as is the case in many intrapreneurial endeavours, affirmation and encouragement are necessary.</p>	<p>-</p> <p>+</p> <p>+</p> <p>-</p>	<p>1.15.1</p> <p>1.15.2</p> <p>1.15.3</p> <p>1.15.4</p>	<p>Management always jumps on employees out of the blue.</p> <p>Even if things do not work out, management always encourages employees.</p> <p>When one is unsure, management always offers positive suggestions.</p> <p>In this organisation, one is alone with one's problems.</p>
<p>1.16 Future orientation</p> <p>Reason: This dimension is akin to a long-term view. It is necessary to encourage new answers to new problems that are foreseen. It is also one of the key elements of a learning organisation.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>1.16.1</p> <p>1.16.2</p> <p>1.16.3</p> <p>1.16.4</p>	<p>We do not only look at our current situation, but we plan for the future.</p> <p>Tomorrow is another day to win the battle.</p> <p>We do not adapt our ways because of what we have learnt.</p> <p>Only the now counts, tomorrow will look after its own problems.</p>
<p>1.17 Manage entrepreneurial problems (e.g. planning fallacy)</p> <p>Reason: Being engrossed in a specific process can cause a loss of perspective (as is illustrated in the literature). Part of management's task is to identify these problems and manage them.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>1.17.1</p> <p>1.17.2</p> <p>1.17.3</p> <p>1.17.4</p>	<p>Management keeps us guided when we believe we can do anything.</p> <p>When I am not in a good mood and cannot perform, but I am encouraged by management.</p> <p>Management leaves me to jump to conclusions.</p> <p>In this organisation one should use any shortcut that is possible.</p>

Variable and Rationale	Positive / Negative	Number	Item
<p>1.18 Develop skills</p> <p>Reason: Entrepreneurs in organisations are made not born. Management should plan for, and actively develop the intrapreneurial skills of staff.</p>	<p>-</p> <p>-</p> <p>+</p> <p>+</p>	<p>1.18.1</p> <p>1.18.2</p> <p>1.18.3</p> <p>1.18.4</p>	<p>Employees' skills are not developed in this organisation.</p> <p>There is no system in this organisation that identifies entrepreneurs.</p> <p>Management actively plans for, and develops the skills of employees.</p> <p>There is room for self-development in this organisation.</p>
<p>1.19 Create Intrapreneurial structures</p> <p>Reason: The dimension explores the extent to which management actively creates structures and environments that will facilitate intrapreneurship.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>1.19.1</p> <p>1.19.2</p> <p>1.19.3</p> <p>1.1.9.4</p>	<p>Structures in this organisation enhances co-operation.</p> <p>The organisation is organised in small and empowered units.</p> <p>Highly centralised authority manages this organisation.</p> <p>This organisation is a bureaucracy.</p>
<p>1.20 Limit over-control</p> <p>Reason: See 1.1 The need for control and entrepreneurial freedom should be balanced.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>1.20.1</p> <p>1.20.2</p> <p>1.20.3</p> <p>1.20.4</p>	<p>Although I have some freedom, I must frequently report back to my manager.</p> <p>My manager gives me ample of room to operate in, but still helps me when necessary.</p> <p>It is very difficult to produce results with management always looking over one's shoulder.</p> <p>There is very little freedom to do one's own thing in this organisation.</p>

Variable and Rationale	Positive / Negative	Number	Item
<p>1.21 Culture of empowerment</p> <p>Reason: A key element of culture is that of empowerment. Contrary to this is over-control that could stifle intrapreneurship.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>1.21.1</p> <p>1.21.2</p> <p>1.21.3</p> <p>1.21.4</p>	<p>Everyone has power in this organisation.</p> <p>Leadership is not only allowed at the top. It operates everywhere in this organisation.</p> <p>Commitment of employees in this organisation is ignored.</p> <p>Employees in this organisation are not motivated and successful.</p>
<p>1.22 Do not use traditional controls</p> <p>Reason: Sathe (1989) clearly illustrated that traditional approaches and standard financial controls are counter-productive when applied to the measure/control of intrapreneurship. This dimension explores the extent to which it is found in the organisation.</p>	<p>-</p> <p>-</p> <p>+</p> <p>+</p>	<p>1.22.1</p> <p>1.22.2</p> <p>1.22.3</p> <p>1.22.4</p>	<p>Management refuses to change with the organisation - they still do things the same way.</p> <p>New projects/ideas are treated the same as normal business</p> <p>New ideas/projects are not only evaluated on immediate profits.</p> <p>The organisation is prepared to lose money in the short-term in order to gain money long-term for new ideas/projects.</p>
<p>1.23 Envisioning/ inspiring</p> <p>Reason: It has been said that a corporate vision should be created for intrapreneurship. This dimension, as has been illustrated by De Coning, goes beyond that and enthuses employees. It gets them to make the vision their own and therefore actively participate.</p>	<p>+</p> <p>-</p> <p>+</p> <p>-</p>	<p>1.23.1</p> <p>1.23.2</p> <p>1.23.3</p> <p>1.23.4</p>	<p>Management frequently inspires the workforce.</p> <p>Management only pays lip service to new things.</p> <p>Everyone in this organisation knows what we are working towards.</p> <p>Employees hate working for this organisation.</p>

Variable and Rationale	Positive / Negative	Number	Item
1.24 Discretionary powers to intrapreneurs Reason: This dimension is similar to empowerment but concentrates on structures and processes. The researcher found in exploratory talks with intrapreneurial companies that this is the single biggest point of frustration – that intrapreneurs/teams cannot control their own processes. This dimension explores the extent to which discretionary powers has been allocated.	+	1.24.1	Discretionary power is allocated to employees where necessary.
	-	1.24.2	I may not make any decisions whatsoever.
	-	1.24.3	True power is still vested in top management.
	+	1.24.4	Management trusts employees with decision-making power where necessary.
2. Communication In this variable communication and its elements within the organisation are explored. Without communication that facilitates intrapreneurship, the organisation will not carry the essential elements of Intrapreneurship. Without open communication, nothing will be shared and the culture will be closed.			
2.1 Open communication Reason: In this dimension communication is seen not only from management's point of view but also in general. To what extent do employees communicate?	-	2.1.1	My fellow employees seldom talk to me.
	-	2.1.2	People never listen in this organisation.
	+	2.1.3	Employees share their experiences, ideas and feelings.
	+	2.1.4	Many new ideas are born from conversations between employees.
2.2 No 'turf' in communication Reason: The researcher found (confirmed by Nickholson, 1998) that if 'own' or 'turf' areas exist, they stop the effective flow of	-	2.2.1	Certain work related topics can never be discussed.
	-	2.2.2	People are very protective of their own work and they never talk about it.
	+	2.2.3	Employees from different work areas frequently share

Variable and Rationale	Positive / Negative	Number	Item
communication. This is especially true of highly departmentalised (and hierarchical) organisations.	+	2.2.4	problems, new ideas and methods when they talk. Everyone shares useful information.
2.3 Synergism Reason: Synergy implies that the total is more than the sum of the individual elements. This is also true of the communication efforts in an organisation. This dimension denotes those elements that will constitute synergy of communication.	+	2.3.1	Work teams communicate well.
	-	2.3.2	When we talk in a group, everyone has different views.
	+	2.3.3	When different work groups get together, problems are solved easily.
	-	2.3.4	Communication in this organisation is not useful.
2.4. No hierarchical communication Reason: The literature speaks strongly against layered or hierarchical communication. It is proposed that free or open communication facilitates intrapreneurship.	-	2.4.1	Communication in this organisation is only 'top down'.
	-	2.4.2	Because of so many people dealing with it, communication takes a long time to get to me.
	+	2.4.3	Everybody talks to everybody in this organisation.
	+	2.4.4	Management talks directly to staff.
2.5 Operational feedback Reason: Feedback leads to learning. Without communication in this regard it is difficult to adjust processes, structures and behaviour. This in turn could influence intrapreneurship in the organisation.	+	2.5.1	Management communicates well in general.
	+	2.5.2	Feedback is generally given about performance.
	-	2.5.3	The organisation does not have effective reporting systems.
	-	2.5.4	Not all employees receive feedback in this organisation.

Variable and Rationale	Positive / Negative	Number	Item
2.6 Information exchange Reason: The free exchange of information (without judgement) is important. The literature shows that in intrapreneurial organisations this element leads to greater innovation. This dimension adds to 2.2 above. It has as purpose the confirmation of empowerment, the enhancement of problem solving, and flattening of organisational structures.	+	2.6.1	People, regardless of title, share information.
	+	2.6.2	Information search and sharing are widespread, and go well beyond 'traditional' information.
	-	2.6.3	Because information is not shared, it takes a long time to solve problems.
	-	2.6.4	Management always has to help, because employees are not prepared to share.
2.7 Share ideas Reason: The sharing of ideas is similar to free exchange of information. However, it rather denotes specific ideas than general information. This dimension is seen in the context of innovation and creativity.	+	2.7.1	There is a lot of sharing of new ideas.
	+	2.7.2	My ideas changed product development in other sections of the organisation.
	-	2.7.3	People are very jealous of their ideas.
	-	2.7.4	The organisation has lost money, because employees are not prepared to share their views.
3. Environment In this variable the environment will be explored in order to determine if it is conducive to intrapreneurship. If the environment does not foster intrapreneurship, the organisation will not be intrapreneurial.			
3.1 Scanning processes Reason: The scanning processes in the environment are important for intrapreneurship as it could assist with innovation and creativity. It furthermore allows the organisation to act timeously to new scenarios that	+	3.1.1.	All employees are involved in gathering information about the business environment.
	+	3.1.2	The business environment is routinely scanned.
	-	3.1.3	Important information about the competitive environment does not get to top

Variable and Rationale	Positive / Negative	Number	Item
could develop. Scanning is seen on both operational and strategic levels.	-	3.1.4	management. Business opportunities are frequently lost.
3.2 Learning culture Reason: The dimension 'learning' is seen as part of culture, and is important as it denotes those processes that allow the organisation and its employees to adjust to specific circumstances. The dimension is here seen as not only specific instances, but also permeating the whole organisation. A key element of learning organisations is the acceptance of failure (3.3)	- + - +	3.2.1 3.2.2 3.2.3 3.2.4	This organisation never adapts to changing circumstances, but stays the same. New challenges are always met with new ideas/methods/processes. This organisation does not believe in continuous improvement. People learn from their mistakes in this organisation.
3.3 No risk adverseness Reason: Although this dimension was described in the section dealing with management, it is here seen as a specific element of culture. It is the way that the employee perceives the organisation to behave, as a whole. Managed risk is the foundation for entrepreneurship.	- + + -	3.3.1 3.3.2 3.3.3 3.3.4	People who make mistakes are never forgiven. Failure is not punished. Risk is managed, not avoided, in this organisation. No support is offered in this organisation and therefore no chances are taken.
3.4 No defined 'turfs' Reason: This dimension has been explored as an element of communication. Here it is seen in the context of areas of operation. This is especially true in organisations where development (including creativity and innovation) happens in isolation of normal	- - +	3.4.1 3.4.2 3.4.3	Operationally related information is not shared amongst different work teams/groups/departments. Assistance with team/group/departmentally related problems are not welcomed. There are no barriers between teams/groups/departments.

Variable and Rationale	Positive / Negative	Number	Item
production processes. It could be the single most prohibitive element to transformation.	+	3.4.4	In this organisation we do not believe in 'turfs'. Everybody help each other.
3.5 Intrapreneurial freedom Reason: The environment should cater for the intrapreneur. It should allow some degree of freedom. Typical of this is the 3M organisation quoted in the literature.	+	3.5.1	I have the freedom to try new things
	+	3.5.2	There is a system in this organisation in which one can spend a portion of one's time trying out new things.
	-	3.5.3	In this organisation you are only allowed to do your job per the job description, nothing else.
	-	3.5.3	Any non job-related activities are severely penalised in this organisation.
3.6 Empowered employees Reason: Empowerment is seen here as a general environmental dimension, rather than from management's point of view.	+	3.6.1	Decision-making is decentralised.
	-	3.6.2	Groups/teams/departments are not responsible for their own budgets and cannot allocate out of the budget.
	+	3.6.3	
	-	3.6.4	Everyone in this organisation is empowered.
3.7 Serendipity practised and encouraged Reason: This dimension denotes the extent to which a serendipitous system is deployed within the organisation. To what extent do employees actually prepare themselves for the moment of creativity- or does the environment rather cloak the creative processes.	+	3.7.1	Everyone in this organisation is focussed in terms of new discoveries.
	+	3.7.2	People in this organisation are taught to look for opportunities.
	-	3.7.3	In this organisation there is little insight in turning ideas into new products/methods and processes.
	-	3.7.4	The organisational environment does not foster the recognition of new ideas.

Variable and Rationale	Positive / Negative	Number	Item
<p>3.8 Rewards and recognition</p> <p>Reason: This dimension indicates the extent to which rewards and recognition are coupled to intrapreneurial efforts.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>3.8.1</p> <p>3.8.2</p> <p>3.8.3</p> <p>3.8.4</p>	<p>Rewards are perceived as critical in this organisation.</p> <p>Rewards are creatively managed in this organisation to promote innovation.</p> <p>In this organisation there are not enough rewards for those that deserve them.</p> <p>Risk taking and innovation are not rewarded.</p>
<p>3.9 Access to resources</p> <p>Reason: The literature shows clearly that intrapreneurs re-deploy resources within organisations. This dimension explores to what extent resources are dedicated to intrapreneurial processes (e.g. <i>intracapital</i>) and if the environment would allow re-deployment.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>3.9.1</p> <p>3.9.2</p> <p>3.9.3</p> <p>3.9.4</p>	<p>Resources can be 'borrowed' when needed.</p> <p>Entrepreneurs in this organisation have access to resources when they need them.</p> <p>It is impossible to make new ideas work because of a lack of resources.</p> <p>Departments/groups/teams are very protective of their own resources.</p>
<p>3.10 Changes recognised as opportunities</p> <p>Reason: This dimension links with scanning processes. It denotes the extent to which the environment is conducive to the identification of opportunities. The dimension examines serendipity within an organisation.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>3.10.1</p> <p>3.10.2</p> <p>3.10.3</p> <p>3.10.4</p>	<p>Changes always bring new opportunities.</p> <p>People in this organisation are taught to look for changes.</p> <p>Changes only bring problems and unhappiness.</p> <p>Changes should be avoided at all cost.</p>

Variable and Rationale	Positive / Negative	Number	Item
3.13 Experimenting culture Reason: When the organisation has a culture that promotes experimenting, especially without penalty, ideas can be generated more easily and thus innovation. When the contrary is true, the environment will discourage any new activity or idea and thus intrapreneurship will be stifled.	+	3.13.1	My ideas are welcomed in this organisation.
	-	3.13.2	I am discouraged to try out new ideas.
	+	3.13.3	Top management asks questions to try out new ideas.
	-	3.13.4	Suggestions are not welcomed but are rather seen as personal attacks.
3.14 Internal environment conducive Reason: This dimension denotes the ability of the internal environment to promote intrapreneurship. It also includes proper organisational support for intrapreneurship. It deals specifically with intra-group activities.	-	3.14.1	It is difficult in my group/team/department to try something new.
	+	3.14.2	My team/group/department gets together frequently to solve problems.
	-	3.14.3	In my team/group/department people are very suspicious of new things.
	+	3.14.4	There is no jealousy in my group/team/department about work related matters.
3.15 Idea-receptive environment Reason: In an environment where new ideas are not welcome it could be impossible for innovation to flourish. Similarly adaptation to new challenges and the provision for strategic threats cannot occur. This dimension therefore describes the extent to which the environment accepts new ideas.	+	3.15.1	This organisation treats new ideas constructively.
	+	3.15.2	People are encouraged to solve problems creatively.
	-	3.15.3	In this organisation time is not spent on new ideas.
	-	3.15.4	I find that my opinion is not asked for and not respected.

Variable and Rationale	Positive / Negative	Number	Item
3.16 Freedom and empowerment Reason: This dimension further explores the ability for the average employee within the organisation to conduct intrapreneurial activities. It concentrates on the actual delivery of entrepreneurial products.	+	3.16.1	I have contributed to the creation of a new product/ method/process during the past year.
	+	3.16.2	I was allowed to make a decision about a new idea during the past year.
	+	3.16.3	Due to my input, crucial new information came to light.
	+	3.16.4	This organisation produced many new ideas/products/ methods during the past year.
3.17 Opportunities part of culture Reason: If opportunities are not created as a matter of normal business practise, employees with intrapreneurial orientation could be frustrated. The literature shows evidence of this fact that that usually leads to the employee finding other opportunities - a loss for the organisation.	-	3.17.1	I have a number of great ideas, but there are no opportunities for me to implement them.
	+	3.17.2	If you are willing, this organisation will provide you with opportunities to excel.
	+	3.17.3	This organisation is a source of many opportunities for new markets, products and businesses.
	-	3.17.4	New opportunities are not recognised in this organisation.
3.18 Creative climate Reason: Creativity can be stimulated and acquired. The literature however, states that the Environment should be conducive towards this. This dimension explores the extent to which the environment is creative.	+	3.18.1	Hindrances to creativity are continually removed in this organisation.
	-	3.18.2	Internal politics stifle creativity in this organisation.
	-	3.18.3	People in this organisation are not made aware of their creative abilities.
	+	3.18.4	There is a mechanism for developing new ideas within the organisation.

Variable and Rationale	Positive / Negative	Number	Item
3.19 Interactive learning Reason: This dimension is similar to synergy in communication. It implies that learning within the organisation will deliver a richer product if it is done interactively. As such it could promote intrapreneurship within the organisation.	+	3.19.1	The organisation encourages its employees to solve problems together.
	+	3.19.2	This organisation learns and adapts.
	-	3.19.3	Employees of this organisation prefer to solve problems or try out new things by themselves.
	-	3.19.4	Group participation is not the preferred option in this organisation.
4. Structures The organisational structure and all its components, along with the environment, will facilitate intrapreneurship or not. Communication for example, cannot facilitate intrapreneurship if the structure does not allow it.			
4.1 Informal, flat structures Reason: When structures in organisations are flat and informal, they could promote the flow of ideas, communication, innovation and other intrapreneurial processes. When structures in organisations are hierarchical, the opposite could be true. This dimension denotes the extent that structures are flat and informal.	-	4.1.1	This organisation is very formal. Titles are strictly used and reporting structures are absolutely adhered to.
	+	4.1.2	Information flows smoothly between departments/divisions in this organisation.
	-	4.1.3	The organogram of this organisation is large and very hierarchical.
	+	4.1.4	Structures in this organisation enhance co-operation.
4.2 Teams for intrapreneurship Reason: The literature shows evidence of intrapreneurship being more effective in organisations that create formal mechanisms to effect intrapreneurship. One of	+	4.2.1	In this organisation there are R&D teams/project teams/venture teams.
	-	4.2.2	People in this organisation rather meet informally to develop new ideas than organise themselves into dedicated teams.

Variable and Rationale	Positive / Negative	Number	Item
the examples of such a mechanism is an intrapreneurial team within an organisation. Teams should not be confused with teamwork.	+	4.2.3	Every new project idea in this organisation is allocated to a dedicated team/teams.
	-	4.2.4	It is difficult to develop new things because of a lack of skills in my team/group/department.
4.3 Intracapital Reason: The dimension <i>Intracapital</i> is here seen as the result of formal structuring within the organisation. Above, it denotes the allocation of resources. Here it is rather the support structure and the presence of control- mechanisms of <i>intracapital</i> .	+	4.3.1	This organisation has allocated a specific portion of the budget for the development of new ideas.
	-	4.3.2	Money cannot be lost on new ideas/projects.
	+	4.3.3	Many ideas are tried before one will work. Money can be lost on the ones that do not work.
	-	4.3.4	Management is usually concerned if resources are wasted on new ideas.
4.4 Generic structures Reason: This dimension explores the presence of generic structures within the organisation that have been created with the express purpose of facilitating intrapreneurship. An example is the 'Pacing Plus Program' of the 3M organisation.	+	4.4.1	This organisation has developed specific programmes/structures to guide new ideas from conception to final product.
	-	4.4.2	There are no specific structures that help staff to develop new ideas/products.
	+	4.4.3	In this organisation there are teams/groups that oversee the development of new ideas into products/services.
	-	4.4.4	Nobody knows what to do with new ideas for products/services.

Variable and Rationale	Positive / Negative	Number	Item
4.5 Structures should support the intrapreneur Reason: This dimension denotes the extent to which the organisation's structures support intrapreneurship. This dimension concentrates on individual support.	-	4.5.1	I am left to my own devices when I try something new.
	+	4.5.2	When a new idea is generated, a mentor is immediately allocated to help.
	-	4.5.3	One never gets any help with new projects/ideas.
	+	4.5.4	Resources are allocated to me when I start a new project.
4.6 Integrate sub-systems Reason: The dimension denotes the view that internal sub-systems of an organisation should be integrated.	+	4.6.1	Employees are aware of the support of top management for their new ideas/projects/plans.
	+	4.6.2	All systems in this organisation's structure work seamlessly.
	-	4.6.3	Sections of this organisation do not work together.
	-	4.6.4	Rules and procedures stifle the working together of sections of this organisation.
5. Strategy An intrapreneurially orientated strategy and strategies for intrapreneurship should be developed in organisations. Intrapreneurship does not happen by itself, it is the by-product of strategy. Intrapreneurship itself, as an overall strategy for the organisation, will ensure its survival.			
5.1 Systematic planning for intrapreneurship Reason: Intrapreneurship does not happen by itself. The organisation should actively plan for it. This dimension denotes the extent to which the organisation plans for intrapreneurship.	+	5.1.1	Budget is allocated for specific activities that will enhance entrepreneurship in the organisation.
	+	5.1.2	This organisation has a clear and well-documented plan for its entrepreneurial activities.
	-	5.1.3	Planning is not a continuous and ongoing activity.
	-	5.1.4	During planning nobody takes entrepreneurship into account.

Variable and Rationale	Positive / Negative	Number	Item
5.2 Specific strategies Reason: The planning process is part of strategic management. As such specific strategies should be developed for intrapreneurship. This dimension denotes that.	+	5.2.1	There is a clear blueprint for this organisation's strategy of entrepreneurship.
	-	5.2.2	This organisation only has a vague corporate strategy.
	+	5.2.3	Business planning caters for entrepreneurs in the organisation.
	-	5.2.4	This organisation does not have a separate, comprehensive and written strategy for entrepreneurship.
5.3 Goal support for intrapreneurship Reason: In the description of variables above it has been stated that the setting of goals is an important issue. This dimension denotes the extent to which in the setting of goals, intrapreneurship is catered for.	+	5.3.1	Entrepreneurial activities are included in the setting of goals.
	+		
	-	5.3.2	Specific goals are set for innovations in this organisation.
	-	5.3.3	This organisation does not set goals for entrepreneurial behaviour.
		5.3.4	The achievement of goals is not rewarded.
5.4 Seek new ventures Reason: This dimension denotes the extent to which the organisation is actively seeking out new ventures.	+	5.4.1	This organisation actively seeks out new business opportunities.
	+	5.4.2	New internal and external businesses are important to this organisation.
	-	5.4.3	New venture companies have never been created by this organisation.
	-	5.4.4	Business opportunities are frequently lost.

Variable and Rationale	Positive / Negative	Number	Item
5.5 Adaptation Reason: Struwig (1991) proved that intrapreneurship could be positively utilised as a strategy. This dimension denotes the strategic ability of the organisation to adapt to changing circumstances.	+	5.5.1	This organisation continually transforms itself to fit new circumstances.
	+	5.5.2	This organisation constantly examines itself.
	-	5.5.3	Change is avoided in this organisation.
	-	5.5.4	New methods/processes are frowned upon.
5.6 Long-term focus Reason: The ability to focus long term has been examined in previous dimensions. Here the dimension denotes a long-term focus as strategic view, which would then permeate all operational issues.	+	5.6.1	Organisational goals are set for long-term achievement.
	+	5.6.2	All new projects/processes are seen in the long term rather than for achieving immediate results.
	-	5.6.3	Feasibilities concentrate on short-term paybacks.
	-	5.6.4	Strategies employed by this organisation tend to benefit short-term project/programmes.
5.7 Administration strategy for resources Reason: This dimension indicates whether an organisation has deployed an administration (support) strategy that would allocate resources for intrapreneurship within the organisation.	+	5.7.1	Money is allocated for the support of entrepreneurship in this organisation.
	+	5.7.2	Resource-ownership is diluted so that new projects/ programs could obtain its share.
	-	5.7.3	There is no specific support strategy for entrepreneurship.
	-	5.7.4	Administrative processes do not cater for business outside the usual.

Variable and Rationale	Positive / Negative	Number	Item
5.8 Venture model in strategy Reason: Dimension 5.4 denotes the active seeking out of new ventures. Dimension 5.8 indicates the existence of a venture model in the strategic planning process of the organisation.	+	5.8.1	Venture capital is allocated as part of normal business.
	+	5.8.2	The organisation created venture teams.
	-	5.8.3	The structure of the organisation does not cater for new ventures.
	-	5.8.4	The planning processes of this organisation do not take new ventures into account.
5.9 Couple rewards to strategies Reason: This dimension denotes the specific strategic plans and actions to link rewards and recognition to intrapreneurial actions.	-	5.9.1	The achievement of goals, set during planning, is not coupled to rewards.
	-	5.9.2	The human resource budget does not provide for a reward system.
	+	5.9.3	Individual and team efforts are rewarded.
	+	5.9.4	Entrepreneurial behaviour is rewarded.
5.10 Employ intrapreneurship as strategy Reason: Struwig (1991) proved that if an organisation uses intrapreneurship as overall strategy, it would excel. This dimension denotes the strategic poise of an organisation.	+	5.10.1	Top management believes in entrepreneurship within the organisation.
	+	5.10.2	New processes, products, services and ideas are continually developed in this organisation.
	-	5.10.3	Entrepreneurial efforts in this organisation are not supported.
	-	5.10.4	Discretionary resources are not allocated to entrepreneurs in this organisation.

Variable and Rationale	Positive / Negative	Number	Item
<p>6.Risk-taking</p> <p>Risk-taking is one of the primary inputs for the environment variable. Intrapreneurship always has an element of risk attached to it. How it is managed, supported, and to what extent it is provided for, will determine the success or not of intrapreneurship. Entrepreneurial risk is defined as risk involved in new ventures, products or processes under conditions of uncertainty. Although risk and its elements have been explored in previous dimensions, the areas that have not been covered are explored here.</p>			
<p>6.1 Support</p> <p>Reason: This dimension denotes the support for intrapreneurial endeavours, seen from an inter-employee viewpoint.</p>	<p>+</p> <p>-</p> <p>+</p> <p>-</p>	<p>6.1.1</p> <p>6.1.2</p> <p>6.1.3</p> <p>6.1.4</p>	<p>Management always supports employees.</p> <p>Only certain individuals take risks.</p> <p>Top management only manages for success.</p> <p>When you fail, you stand alone.</p>
<p>6.2 Structure</p> <p>Reason: This dimension denotes the extent, to which the organisation's components, especially the structure, are tolerant of risk.</p>	<p>+</p> <p>-</p> <p>+</p> <p>-</p>	<p>6.2.1</p> <p>6.2.2</p> <p>6.2.3</p> <p>6.2.4</p>	<p>Structures have been created to manage risk associated with new ideas/projects.</p> <p>The reporting structures in this organisation do not cater for any mistake/failure.</p> <p>Management protects employees against risk.</p> <p>Teams/project teams or the like were created to accommodate any new idea or product.</p>
<p>6.3 Resources</p> <p>Reason: This dimension denotes the extent, to which resources are protected against risk.</p>	<p>-</p> <p>+</p> <p>+</p>	<p>6.3.1</p> <p>6.3.2</p> <p>6.3.3</p>	<p>Resources are protected against the risk of failure.</p> <p>Management allocated budget for projects that could fail or succeed.</p> <p>There is money available for ideas that might not work.</p>

Variable and Rationale	Positive / Negative	Number	Item
	-	6.3.4	It is only possible to obtain resources if no risk is attached.
6.4 Trust Reason: This dimension denotes inter-employee trust in terms of risk.	+ + - -	6.4.1 6.4.2 6.4.3 6.4.4	There is emotional safety in relationships in the organisation. People trust each other in this organisation. In this organisation the word is 'every man for himself'. People only trust each other when there is no risk involved.
6.5. Changes Reason: Organisations tend to prefer stable, non-changing conditions. Usually these conditions seem to be 'un-risky'. This dimension indicates the extent to which an organisation prefers stable conditions.	- - + +	6.5.1 6.5.2 6.5.3 6.5.4	Everyone is happy in this organisation, as long as you don't try something new. This organisation avoids new ventures. Everyone is keen to try products/methods markets in this organisation. Changes are accepted as part of normal business.
6.6. Tolerance of failure Reason: Management's attitude and tolerance of failure has been explored earlier. This dimension indicates the attitude of the organisation as a whole towards failure. It especially refers to inter-employee attitudes.	+ - - +	6.6.1 6.6.2 6.6.3 6.6.4	This organisation accepts the fact that people will make mistakes Fellow employees do not associate themselves with you when you fail/make mistakes. Personal risk is severe in this organisation, therefore people don't try anything new. Although the outcome of something new is uncertain, people always try new things.

Variable and Rationale	Positive / Negative	Number	Item
<p>7. Innovation and Creativity</p> <p>Innovation and creativity are essential elements of intrapreneurship, which are embedded in all of the other variables. However, for the purpose of highlighting, key components that influence their success are explored here.</p>			
<p>7.1 System for development, support</p> <p>Reason: There should be a system that allows for the development and support of creativity and innovation. This dimension indicates the extent to which this is done in the organisation.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>7.1.1</p> <p>7.1.2</p> <p>7.1.3</p> <p>7.1.4</p>	<p>This organisation has a system that actively develops creativity and innovation.</p> <p>People are rewarded through reward and recognition for creative behaviour.</p> <p>People are not challenged to produce new ideas.</p> <p>My area of the organisation is not innovative.</p>
<p>7.2 Practical search for</p> <p>Reason: Robert and Weis (1988) stated that creativity and subsequent innovation do not happen by themselves. The process is a practical search for and the prudent assessment of opportunities. This dimension denotes the extent to which this is prevalent in the organisation.</p>	<p>+</p> <p>+</p> <p>-</p> <p>-</p>	<p>7.2.1</p> <p>7.2.2</p> <p>7.2.3</p> <p>7.2.4</p>	<p>Everyone in this organisation seeks out new ideas and opportunities.</p> <p>Part of this organisation's vision is to constantly produce new products/services.</p> <p>New things are usually stumbled upon.</p> <p>People are just lucky to find new opportunities and get new ideas.</p>
<p>7.3 Prudent assessment of</p> <p>Reason: As per 7.2</p>	<p>+</p> <p>+</p>	<p>7.3.1</p> <p>7.3.2</p>	<p>There is a system for the evaluation of new ideas opportunities in this organisation.</p> <p>Management protects the organisation against undue exposure of new ideas.</p>

Variable and Rationale	Positive / Negative	Number	Item
	-	7.3.3	All ideas are tried out in this organisation.
	-	7.3.4	What happens to an idea depends on the person who gets the idea.
7.4 Serendipity system Reason: A serendipitous environment has been noted earlier. The dimension here indicates the extent of the awareness of serendipity within the organisation.	+	7.4.1	Employees are aware of the fact that they should look out for new ideas, opportunities.
	+	7.4.2	If you are not ready, opportunity will pass you by.
	-	7.4.3	Most people in our organisation are not aware of new opportunities.
	-	7.4.4	People in this organisation work as if nothing will ever change.
7.5 Managing innovation Reason: Many ideas are produced in intrapreneurial organisations, however, not so many innovations result from those ideas. It flows from this that an organisation should have a system for managing innovation.	+	7.5.1	Innovation is managed in this organisation.
	+	7.5.2	Resources are allocated for the managing of innovation.
	-	7.5.3	There is no system to help an idea to develop to a final product/service.
	-	7.5.4	Many people in our organisation have ideas but do not know what to do with them.
7.6 Process model Reason: The literature proposes that a process model for new innovations should be created. This model caters for the process from absorption to refinement and the final selling of a product. This dimension indicates the extent of such a	+	7.6.1	Feedback about the development stage of new ideas is constantly given.
	+	7.6.2	Ideas are developed from concept stage to final business product/service.

Variable and Rationale	Positive / Negative	Number	Item
model within an organisation.	-	7.6.3	There is no internally and externally stimulated opportunity recognition in this organisation.
	-	7.6.4	There is no process through which new opportunities are developed.
7.7 Promotion plan Reason: Even if a culture of innovation and creativity exists within an organisation, it should still promote creativity and innovation for it to be actively pursued. This dimension denotes the extent to which the organisation promotes the principles and processes of creativity and innovation.	+	7.7.1	There is a promotion plan in this organisation for stimulating creativity and innovation.
	+	7.7.2	Everyone talks about innovation and creativity in this organisation.
	-	7.7.3	Employees are not made aware of opportunities and new ideas pursued.
	-	7.7.4	Creativity and innovation is not a subject for discussion in this organisation.
7.8 Streamline to be progressive, focussed Reason: This dimension indicates to what extent the organisation has streamlined its processes of creativity and innovation.	+	7.8.1	Creative efforts are streamlined to produce maximum results in this organisation.
	+	7.8.2	Innovation and creativity processes are examined and discussed in this organisation.
	-	7.8.3	Creativity happens randomly in this organisation.
	-	7.8.4	New innovations are limited to a few employees.

APPENDIX C

THE LETTER TO ORGANISATIONS

The Director

company name

company address

Dear ***name***

PARTICIPATION IN DOCTORAL STUDY OF CORPORATE ENTREPRENEURSHIP

The purpose of this letter and e-mail is to initiate contact and to invite you to participate in a doctoral research study conducted under the auspices of the University of Stellenbosch.

I am acutely aware of the fact that corporate individuals receive many such requests and are frequently burdened by cumbersome questionnaires. However, management research is not possible without your support and participation.

Some of the problems that companies face with research studies are questionnaires that are too long (especially those aimed at senior- or executive personnel), lack of feedback and of course what value the study adds to the company's activities. Please allow me a few moments of your time to address the issues raised above.

My study has at heart Corporate Entrepreneurship and I aim to develop a systems model that will assist corporate organisations in South Africa to perpetuate internal entrepreneurship. In the process of analysis, each individual company's data is interpreted. This information is valuable as it measures and interprets the following dimensions:

- Management style and orientation (perceived and actual)
- Communication, especially in terms of its effect on intrapreneurship
- The organisational environment (again interpreted in terms of intrapreneurship)
- Organisational structures and mechanisms
- Strategic posturing in terms of intrapreneurship
- Risk profile (propensity)
- Innovation and creativity.

The results obtained from the study can be extremely useful in organisations' planning processes, including strategic planning.

Completion times are not daunting since the questionnaire is designed to be completed in approximately 15 minutes. The questionnaires can also be completed electronically (Word) and posted by e-mail. Lastly, total confidentiality of study information is guaranteed.

I will appreciate a positive answer and will follow up with a detailed instruction letter to an internal contact.

Please do not hesitate to contact me either through e-mail (cgoosen@medic.up.ac.za) or at 012-3192177 or 0824604791

Yours sincerely

Chris Goosen

(Student number: 7450494)

This letter will also be posted

APPENDIX D**THE PRELIMINARY QUESTIONNAIRE**

The objective of this survey is to determine how your organisation views internal entrepreneurship.

The study is anonymous. Confidentiality is guaranteed. Please return directly to cgoosen@medic.up.ac.za, fax to 012 3212236 or post to P.O. Box 75932, Lynnwood Ridge 0040.

This questionnaire determines the views and opinions of **individuals** in middle- and senior management positions. As such, there are no right or wrong answers. Please feel free to express your own views and opinions. The questionnaire consists of statements about your organisation. Please respond to each of the questions by putting a cross in the space that most accurately fits the extent to which that statement describes **the organisation in which you work**. After you have read each statement, decide on the degree to which the statement accurately describes your views or opinions. Use the following scale:

1. Completely disagree
2. Mostly disagree
3. Slightly disagree
4. Undecided
5. Slightly agree
6. Mostly agree
7. Completely agree

Example:

		Completely disagree	Mostly disagree	Slightly disagree	Undecided	Slightly agree	Mostly agree	Completely agree
1	I have freedom to explore new ideas.	1	2	3	4	X 5	6	7

Please read each of the statements carefully and then indicate the choice that most accurately describes how you see the organisation, the group that you work in, employees or management in general, or yourself.

Instructions for Physical questionnaire

If you completely agree with this statement, you would put an X below 7. If on the other hand, you mostly disagree, you would put an X below 2, and so on.

<p>10 It is impossible to make new ideas work because of a lack of resources.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>11 Operationally related information is not shared amongst different work teams/ groups/ departments.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>12 Entrepreneurial behaviour is rewarded.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>13 In this organisation time is not spent on new ideas.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>14 This organisation has a clear and well documented plan for its entrepreneurial activities.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>15 People who make mistakes are never forgiven.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>16 One can never count on the support of top management with new ventures.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>17 Management trusts the staff.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>18 When a new idea is generated, a mentor is immediately allocated to help.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>19 All new projects/ processes are seen in the long term rather than for achieving immediate results.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>20 In this organisation, the trend for new things is set by management.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>21 Management refuses to change with the organisation – they still do things the same way.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>

22 People are encouraged to solve problems creatively.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

23 New internal and external businesses are important to this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

24 When I cannot perform, I am encouraged by management.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

25 Employees in this organisation are at ease with new ideas.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

26 There is a lot of sharing of new ideas.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

27 Any non job-related activities are severely penalised in this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

28 When different work groups get together, problems are solved easily.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

29 Every new project idea in this organisation is allocated to a dedicated team/ teams.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

30 Problems are quickly solved in this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

31 Suggestions are never accepted by management.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

32 Management talks and listens to everyone.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

33 My manager gives me ample room to operate in, but still helps me when necessary.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

<p>34 All systems in this organisation's structure work seamlessly.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>35 Employees from different work areas/groups frequently share problems, new ideas and methods when they talk.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>36 So-called "innovations" have been a disaster in the organisation.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>37 This organisation is a bureaucracy.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>38 This organisation continually transforms itself to fit new circumstances.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>39 Suggestions from employees are welcomed in this organisation.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>40 All employees are involved in gathering information about the business environment.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>41 The structure of the organisation does not cater for new ventures.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>42 The human resource budget does not provide for a reward system.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>43 Employees of this organisation prefer to solve problems/ try out new things by themselves.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>44 Even if things do not work out, management always encourages employees.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>
<p>45 People, regardless of title, share information.</p> <p>← Completely disagree 1 2 3 4 5 6 7 Completely agree</p>

46 Change is avoided in this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

47 There are no barriers between teams/ groups/ departments.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

48 Leadership is not only allowed at the top. It operates everywhere in this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

49 Management cannot be approached easily.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

50 The organisational environment does not foster the recognition of new ideas.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

51 Top management believes in entrepreneurship within the organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

52 We see ourselves as entrepreneurs.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

53 Money is allocated for the support of entrepreneurship in this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

54 I may not make any decisions whatsoever.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

55 Communication in this organisation is only "top down".

← Completely disagree 1 2 3 4 5 6 7 Completely agree

56 Changes will not always produce results in the short term.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

57 New ideas/ projects are not only evaluated on immediate profits.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

58 This organisation has allocated a specific portion of the budget for the development of new ideas.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

59	There is a system in this organisation in which one can spend a portion of one's time trying out new things.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
60	Management is over cautious.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
61	Management does not trust new ideas.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
62	Management actively plans for, and develops the skills of employees.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
63	This organisation has developed specific programmes/ structures to guide new ideas from conception to final product.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
64	Entrepreneurs cannot work in an organisation.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
65	Risk taking and innovation are not rewarded.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
66	Changes only bring problems and unhappiness.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
67	New challenges are always met with new ideas/ methods/ processes.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
68	People do not like coming to work.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
69	Problem solving is not part of the organisation's culture.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
70	Changes always bring new opportunities.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree
71	I am left to my own devices when I try something new.
←	Completely disagree 1 2 3 4 5 6 7 Completely agree

72 If you are willing, this organisation will provide you with opportunities to excel.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

73 There is no specific support strategy for entrepreneurship.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

74 Decision making is decentralised.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

75 Discretionary power is allocated to employees where necessary.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

76 Only the now counts, tomorrow will look after its own problems.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

77 Immediate results are all that counts in this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

78 Rules and procedures stifle the working together of sections of this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

79 Venture capital is allocated as part of normal business.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

80 There is a mechanism for developing new ideas within the organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

81 This organisation never adapts to changing circumstances, but stays the same.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

82 I am discouraged to try out new ideas.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

83 Management communicates job requirements very well.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

84 This organisation learns and adapts.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

85 In this organisation, one is alone with one's problems.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
86 The organisation is organised in small and empowered units.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
87 One can only try new things in secret.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
88 Management is experienced in responding to new opportunities.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
89 People are important in this organisation.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
90 People are very jealous of their ideas.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
91 People in general, never listen in this organisation.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
92 There is no jealousy in my group/ team/ department about work related matters.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
93 This organisation does not have a separate, comprehensive and written strategy for entrepreneurship.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
94 Structures have been created to manage risk associated with new ideas/ projects.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
95 Everyone is pessimistic in this organisation.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
96 Mistakes are tolerated in this organisation.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
97 Groups/ teams/ departments are not responsible for their own budgets and cannot allocate out of the budget.
← Completely disagree 1 2 3 4 5 6 7 Completely agree

98 Feasibilities concentrate on short term pay backs.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
99 Management listens, but never acts on any suggestion made by employees.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
100 Everybody talks to everybody in this organisation.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
101 Suggestions are not welcomed but are rather seen as personal attacks.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
102 Because information is not shared, it takes a long time to solve problems.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
103 Internal politics stifle creativity in this organisation.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
104 Many new ideas are born from conversations between employees.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
105 There is very little freedom to do one's own thing in this organisation.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
106 There are no specific structures that help staff to develop new ideas/ products.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
107 Everyone in this organisation knows what we are working towards.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
108 Feedback is generally given about performance.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
109 During planning nobody takes entrepreneurship into account.
← Completely disagree 1 2 3 4 5 6 7 Completely agree
110 Management only pays lip service to new things.
← Completely disagree 1 2 3 4 5 6 7 Completely agree

111 I have contributed to the creation of a new product/ method/ process during the past year.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

112 In my team/ group/department people are very suspicious of new things.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

113 There is a general air of well being and excitement in this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

114 In this organisation, one should use any shortcut that is possible.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

115 Rewards are creatively managed in this organisation to promote innovation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

116 People are very protective of their own work, they never talk about it.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

117 Work teams communicate well.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

118 We do not only look at our current situation, but we plan for the future.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

119 Entrepreneurial activities are included in the setting of goals.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

120 Only a few people in this organisation are allowed to be creative and innovative.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

121 New projects and ideas are always supported by top management.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

122 This organisation does not set goals for entrepreneurial behaviour.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

123 It is only possible to obtain resources if no risk is attached.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

124 People trust each other in this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

125 This organisation has a system that actively develops creativity and innovation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

126 Everyone in this organisation seeks out new ideas and opportunities.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

127 Creativity happens randomly in this organisation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

128 Entrepreneurs in this organisation have access to resources when they need them.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

129 There is no system in this organisation that identifies entrepreneurs.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

130 There is no process through which new opportunities are developed.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

131 Structures in this organisation enhance co-operation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

132 There is no system to help an idea to develop to a final product/ service.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

133 When you fail, you stand alone.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

134 There is a promotion plan in this organisation for stimulating creativity and innovation.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

135 Only certain individuals take risks.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

APPENDIX E**THE FINAL QUESTIONNAIRE****EXECUTIVE QUESTIONNAIRE**

The objective of this survey is to determine your organisation's views on corporate entrepreneurship.

The study is anonymous. Confidentiality is guaranteed.

The questionnaire consists of statements about your organisation. After you have read each statement, decide on the degree to which the statement accurately describes your organisation's views or opinions. Use the following scale:

8. Completely disagree
9. Mostly disagree
10. Slightly disagree
11. Undecided
12. Slightly agree
13. Mostly agree
14. Completely agree

Example:

Insert your choice in the column to the left of the scale as depicted below

How many new lines of products or services has your organisation marketed since 1997?

Q1	No new lines of products or	1	2	3	4	5	6	7	Many new lines of products or
5 ←	services								services

Indicate your choice here

When you have completed all the items, please save, and attach the questionnaire to an e-mail to the following address: cgoosen@medic.up.ac.za or post to P.O. Box 75932 Lynnwood Ridge 0040 or fax to 012-3212236

ORGANISATION NAME:***How many new lines of products or services has your organisation marketed since 1997?***

←	Q1	No new lines of products or services	1	2	3	4	5	6	7	Many new lines of products or services

Were changes to lines of products or services minor or dramatic?

←	Q2	Changes in product or service lines mostly of a minor nature	1	2	3	4	5	6	7	Changes in product or service lines have usually been quite dramatic

In general, top management in my organisation favour ...

←	Q3	A strong emphasis on the marketing of tried and true products or services	1	2	3	4	5	6	7	A strong emphasis on R&D, technological leadership, and innovations

In dealing with competitors, my organisation ...

←	Q4	Is seldom the first business to introduce new products or services, administrative techniques, operating technologies etc.	1	2	3	4	5	6	7	Is very often the first business to introduce new products or services, administrative techniques, operating technologies etc.
←	Q5	Typically avoid competitive clashes, preferring the "live-and-let-live" posture	1	2	3	4	5	6	7	Typically adopts a very strong 'undo-the-competitors' posture

In general, top management at my organisation ...

←	Q6	Have a strong tendency to select low-risk projects (with normal and certain rates of return)	1	2	3	4	5	6	7	Have a strong tendency towards high risk projects (with high rates of return)
←	Q7	Believe that, owing to the nature of the environment, it is best to explore it gradually via careful, incremental behaviour	1	2	3	4	5	6	7	Believe that owing to the nature of the environment, bold, wide ranging acts are necessary to achieve the organisation's objectives

When confronted with decision-making situations involving uncertainty, my organisation...

	Q8	Typically adopts a cautious 'wait and see' posture in order to minimize the probability of costly decisions.	1	2	3	4	5	6	7	Typically adopts a bold, aggressive posture in order to maximize the probability of exploiting potential opportunities
--	-----------	--	---	---	---	---	---	---	---	--

In this organisation....

Q9	Entrepreneurial activities are included in goal setting for staff.	
←	Completely disagree	1 2 3 4 5 6 7 Completely agree

Q10	This organisation has systems that actively develop creativity and innovation.	
←	Completely disagree	1 2 3 4 5 6 7 Completely agree

Q11	In this organisation innovation is rewarded.	
←	Completely disagree	1 2 3 4 5 6 7 Completely agree

Q12	This organisation allocates a specific portion of the budget for the development of new ideas/projects.	
←	Completely disagree	1 2 3 4 5 6 7 Completely agree

Q13	Work teams/groups communicate well in this organisation.	
←	Completely disagree	1 2 3 4 5 6 7 Completely agree

Q14	Management accepts suggestions from employees.	
←	Completely disagree	1 2 3 4 5 6 7 Completely agree

Q15	There is freedom in this organisation to do one's own thing.	
←	Completely disagree	1 2 3 4 5 6 7 Completely agree

Q16	Employees are encouraged to solve problems creatively.	
←	Completely disagree	1 2 3 4 5 6 7 Completely agree

Q17 Management supports new projects and ideas.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

Q18 In this organisation employees are empowered.

← Completely disagree 1 2 3 4 5 6 7 Completely agree

APPENDIX F**COMPOSITE FINANCIAL INDEX**

Organisation	Return on average equity	Return on average assets	Asset growth	Share return	Index
23068	25.392	21.717	2.118	-2.571	11.664
23530	11.667	15.965	8.025	-5.726	7.483
22448	10.273	7.754	-2.221	28.631	11.109
23514	8.976	5.607	-0.168	3.140	4.389
22545	16.690	12.393	4.428	-1.019	8.123
23111	-6.583	3.843	-0.399	-7.830	-2.742
23382	10.306	10.992	1.278	-5.724	4.213
22491	11.706	4.817	3.777	-1.277	4.756
23522	14.024	15.902	4.045	-3.926	7.511
23471	22.127	14.023	5.683	-2.998	9.709
32397	17.314	7.225	1.062	1.036	6.659
32869	15.616	3.052	1.009	-8.756	2.730
33098	5.343	10.773	6.515	7.326	7.489
32936	25.308	19.192	1.834	1.393	11.932
32885	8.738	11.098	0.596	-4.861	3.893
32537	12.121	12.739	14.666	-0.983	9.636
42945	4.967	3.870	1.906	-6.333	1.102
42492	19.324	15.767	0.386	-1.116	8.590
43193	15.327	13.608	2.004	-2.082	7.214
42942	182.544	15.749	1.670	3.752	50.929
42818	2.453	0.854	4.749	-1.629	1.607
42670	12.729	4.257	1.926	0.918	4.958
42623	16.082	6.446	1.503	-0.296	5.934
43666	9.442	4.095	5.728	15.742	8.752
52878	13.437	9.306	34.154	-0.354	14.136
53026	38.820	18.063	18.588	7.678	20.787
52619	28.649	17.066	2.337	7.129	13.795
52649	35.789	10.505	32.349	10.264	22.227
52886	-14.716	-2.129	2.505	-11.390	-6.432
52463	9.680	7.204	0.995	-2.123	3.939
62436	15.318	12.057	1.471	-4.034	6.203
62738	14.571	25.268	-9.877	-2.403	6.890
72434	13.196	10.926	3.705	-4.167	5.915
82323	-0.331	4.925	11.362	12.956	7.228
82615	32.330	11.386	8.979	23.428	19.031
92446	6.071	3.545	0.678	-4.873	1.355
92578	2.092	4.979	-0.230	0.627	1.867
93050	6.393	6.861	6.155	10.582	7.498
102646	5.975	10.090	-1.258	-8.690	1.529

Organisation	Return on average equity	Return on average assets	Asset growth	Share return	Index
102584	30.284	10.782	4.409	-2.371	10.776
112417	13.027	10.571	8.256	1.350	8.301
122512	15.700	11.729	4.145	2.152	8.432
132651	-93.433	-7.757	-2.212	-13.009	-29.103
132758	6.420	6.107	2.522	-2.017	3.258
142683	44.521	25.388	12.014	-10.055	17.967
142877	4.422	2.423	-3.938	-4.909	-0.500
142454	12.049	6.374	1.237	-4.789	3.718
142920	3.007	3.897	0.124	-4.143	0.721
143377	36.252	18.488	-6.163	13.216	15.449
142904	18.927	17.848	29.012	-12.742	13.261
142885	15.384	11.263	4.202	3.138	8.497
142936	26.422	7.688	17.125	-6.876	11.090
142861	-19.038	5.941	11.661	-5.112	-1.637
143722	15.074	8.993	7.608	-3.193	7.120
143428	17.235	10.731	5.895	1.113	8.744
152546	24.784	15.797	9.033	-11.587	9.507
152794	18.469	11.173	4.875	-1.658	8.215
152856	98.698	1.206	24.824	-1.588	30.785
152883	14.547	11.326	2.871	0.976	7.430
152826	15.194	11.609	2.268	-2.130	6.735
162382	19.761	10.481	4.687	5.304	10.058
162522	30.500	15.469	3.152	3.550	13.168
173283	17.298	12.805	3.814	3.391	9.327
172377	17.323	14.901	3.961	-4.239	7.986
172641	14.653	6.672	0.401	-2.567	4.790
182753	8.494	1.927	2.484	7.394	5.075
183071	-10.493	-1.143	-1.008	1.947	-2.674
182413	5.111	8.626	9.424	-9.442	3.430
182421	33.562	10.842	-2.286	8.553	12.668
193528	8.157	7.141	1.245	-3.261	3.321
193093	1.204	4.191	-3.378	-3.682	-0.416
192651	15.878	13.626	2.595	0.422	8.130
194178	5.138	6.019	1.861	2.376	3.849
195125	323.735	65.539	16.639	0.774	101.672
195647	23.349	16.594	152.522	4.755	49.305
193978	20.453	6.672	0.910	-0.807	6.807
193461	25.206	20.878	11.211	-1.219	14.019
193838	19.697	13.629	1.352	0.345	8.756
193453	11.935	10.818	3.131	-3.861	5.506
193903	89.952	11.280	6.072	-5.256	25.512
202452	28.824	25.286	6.392	0.398	15.225
203072	23.228	12.045	-1.417	-3.767	7.522
202705	12.046	7.445	0.956	-2.858	4.397

Organisation	Return on average equity	Return on average assets	Asset growth	Share return	Index
202902	42.236	17.144	10.304	-5.092	16.148
212579	14.057	8.208	5.392	-3.883	5.944
222593	14.890	8.446	1.375	3.208	6.980
222609	5.048	9.399	2.298	-2.603	3.535
232394	-12.555	-10.160	-3.404	-1.991	-7.027
232515	2.324	2.619	0.759	-1.101	1.150
232736	17.952	14.372	4.134	2.085	9.635
232845	18.174	13.103	2.465	-5.092	7.162

APPENDIX G

KEY TO ITEM-SCALE CORRELATIONS, 64 VARIABLES (N=166)

Variable	Area	Sub-Area
Ccomhi	Communication	No hierarchical communication
Cideashr	Communication	Idea sharing
Cinfoex	Communication	Information exchange
Cnoturf	Communication	No 'turf' in communication
Copfb	Communication	Operational feedback given
Copncom	Communication	Open communication
Csyner	Communication	Synergism
Ecefrdm	Environment	CE Freedom
Ecntrclm	Environment	Creative climate
Ectrcl2	Environment	Creative climate (2)
Eexite	Environment	Excitement
Eexper	Environment	Experimenting culture
Eideaen	Environment	Idea-receptive environment
Einlrng	Environment	Interactive learning
Elrncl2	Environment	Learning culture
Enoturf	Environment	No 'turf' environment
Eopcul	Environment	Opportunities
Eprobsl	Environment	Problem solving culture
Eresour	Environment	Access to resources
Erewrd	Environment	Rewards and recognition
Esernd	Environment	Serendipity practiced
Icreasr	Innovation and Creativity	Practical search for creativity
Icreasys	Innovation and Creativity	System to support creativity
Iinnman	Innovation and Creativity	Managing innovation
Iinprom	Innovation and Creativity	Promotion plan for creativity
Iprcsmd	Innovation and Creativity	Process model for innovation
Mcestr	Management style and orientation	Create intrapreneurial structures
Mchamp	Management style and orientation	Executive championing of CE
Mctrlnl	Management style and orientation	Need for control
Mdemstl	Management style and orientation	Democratic management style
Mdscpwr	Management style and orientation	Discretionary powers
Mempwr	Management style and orientation	Empowerment

Variable	Area	Sub-Area
Menour	Management style and orientation	Encouragement
Mfurori	Management style and orientation	Future orientation
Mgoalst	Management style and orientation	Goal setting
Mincul	Management style and orientation	Culture driver for innovation
Minnexp	Management style and orientation	Innovation experience
Minptstf	Management style and orientation	Allow input from below
Minsp2	Management style and orientation	Inspire
Minspr	Management style and orientation	Envision
Mltfcs	Management style and orientation	Long-term focus
Movrcrl	Management style and orientation	Over control
Mplfcs	Management style and orientation	People focus
Mskldev	Management style and orientation	Develop skills
Msopce	Management style and orientation	Support for CE
Mtrdctl	Management style and orientation	Do not use traditional controls
Mtrust	Management style and orientation	Trust
Rrskres	Risk-taking	Resources - risk
Rrskstr	Risk-taking	Structures tolerant of risk
Rrsksup	Risk-taking	Risk supported
Rrsktru	Risk-taking	Trust
Sceteam	Structures	Teams for CE
Sfltstr	Structures	Flat structures
Sgenstr	Structures	Generic structures
Sintcap	Structures	<i>Intracapital</i>
Ssadap	Strategy	Adaptation
Ssadmst	Strategy	Administration strategy
SScest2	Strategy	CE strategy
Sscestr	Strategy	Employ CE in strategy
Ssglsup	Strategy	Goal support for CE
Ssnwven	Strategy	Seek new ventures
Sssyspl	Strategy	Systematic planning for CE

Variable	Area	Sub-Area
Ssubsy	Strategy	Integrate sub-systems
Ssvenml	Strategy	Venture model in strategy

APPENDIX H**INTER-ITEM CORRELATIONS FOR 64 VARIABLES (N=166)**

	MCTRLND	MINCUL	MTRUST	MINPTSTF	MENOUR
MCTRLND	1.0000				
MINCUL	0.1739	1.0000			
MTRUST	0.7362	0.3237	1.0000		
MINPTSTF	0.4339	0.5754	0.5480	1.0000	
MENOUR	0.4175	0.3370	0.6108	0.3973	1.0000
MFURORI	0.2379	0.1990	0.4616	0.3048	0.5027
MSKLDEV	0.3872	0.3679	0.3500	0.3601	0.3650
MCESTR	0.3967	0.5008	0.5097	0.4940	0.4808
MINNEXP	0.5333	0.4048	0.5906	0.3836	0.5089
MOVRCRL	0.3502	0.6621	0.4957	0.5967	0.4897
MEMPWR	0.3544	0.4163	0.4866	0.4240	0.5488
MTRDCTL	0.3064	0.3486	0.4213	0.6146	0.3141
MINSPR	0.3920	0.3491	0.4769	0.6523	0.3801
MINS2	0.2905	0.2534	0.3694	0.2459	0.4311
MDSCPWR	0.3024	0.1886	0.4323	0.3033	0.4886
MGOALST	0.2277	0.1555	0.3699	0.3355	0.4541
MDEMSTL	0.4225	0.3400	0.6429	0.5735	0.6399
MPLFCS	0.1632	0.3741	0.3357	0.3783	0.5563
MLTFCS	0.3651	0.3963	0.5120	0.5415	0.5098
MCHAMP	0.5004	0.3689	0.6970	0.5249	0.5497
MSOPCE	0.3213	0.4408	0.5749	0.4495	0.5081
COPNCOM	0.2404	0.3593	0.2911	0.3792	0.5537
CNOTURF	0.3336	0.2097	0.3223	0.2469	0.5269
CSYNER	0.3641	0.2686	0.4869	0.2452	0.5339
CCOMHI	0.3515	0.1645	0.4941	0.3752	0.5043
COPFB	0.2998	0.2330	0.4522	0.3787	0.4758
CINFOEX	0.4318	0.2820	0.4154	0.3588	0.5272
CIDEASHR	0.3202	0.2669	0.4082	0.3802	0.4103
EPROBSL	0.2960	0.3494	0.4896	0.3425	0.4987
EEXITE	0.2675	0.3619	0.3495	0.4414	0.4098
EEXPER	0.4233	0.5499	0.4642	0.5290	0.5754
EIDEAEN	0.3367	0.3055	0.4807	0.4127	0.4237
EOPCUL	0.2893	0.2205	0.4107	0.1325	0.4606
ECNTRCLM	0.4580	0.4150	0.5237	0.4989	0.5294
ECTRCL2	0.3383	0.2392	0.3826	0.3620	0.4069
EINLRNG	0.4292	0.3526	0.5005	0.5230	0.5178
ELRNCUL2	0.5260	0.2072	0.5450	0.2499	0.5421
ENOTURF	0.2909	0.2780	0.3322	0.2023	0.3579
ECEFRDM	0.3472	0.3018	0.2981	0.3010	0.3144
ESERN2	0.1533	0.4698	0.1868	0.3183	0.2725
EREWRD	0.3760	0.2610	0.2907	0.2487	0.4700

	MCTRLND	MINCUL	MTRUST	MINPTSTF	MENOUR
SFLTSTR	0.3666	0.3003	0.4924	0.2182	0.6017
SCETEAM	0.3174	0.4338	0.3444	0.3546	0.2811
SINTCAP	0.2065	0.3288	0.2975	0.2764	0.2796
SGENSTR	0.4479	0.3186	0.4460	0.3978	0.5016

	MCTRLND	MINCUL	MTRUST	MINPTSTF	MENOUR
SSUBSY	0.5589	0.3330	0.6262	0.4336	0.5785
SSYSPL	0.2639	0.3069	0.3271	0.3456	0.4271
SSCESTR	0.5037	0.4122	0.5620	0.5198	0.5448
SSCEST2	0.2941	0.2487	0.3572	0.3370	0.3100
SSGLSUP	0.2747	0.1778	0.2751	0.2398	0.3674
SSNWVEN	0.2814	0.1627	0.3506	0.2273	0.3516
SSADAP	0.4042	0.3898	0.4074	0.4242	0.4336
SSADMST	0.2772	0.2106	0.1897	0.1995	0.3628
SSVENML	0.3954	0.2691	0.4918	0.3237	0.2937
RRSKSUP	0.3752	0.2710	0.4363	0.3010	0.6296
RRSKSTR	0.4240	0.1628	0.3807	0.2530	0.4447
RRSKRES	0.4526	0.2806	0.5236	0.3274	0.4275
RRSKTRU	0.4482	0.2481	0.4437	0.3738	0.6205
ICREASYS	0.3269	0.3931	0.3339	0.4474	0.3892
ICREASR	0.2649	0.2624	0.2228	0.1702	0.3146
IINNMAN	0.3859	0.3705	0.3681	0.4177	0.4439
IPRCSDM	0.4950	0.2354	0.3392	0.3503	0.3608
IINPROM	0.2291	0.1032	0.2223	0.2061	0.2850

	MFURORI	MSKLDEV	MCESTR	MINNEXP	MOVRCRL
MFURORI	1.0000				
MSKLDEV	0.2359	1.0000			
MCESTR	0.2810	0.3330	1.0000		
MINNEXP	0.4239	0.4179	0.4573	1.0000	
MOVRCRL	0.2913	0.4844	0.5652	0.5133	1.0000
MEMPWR	0.3968	0.4994	0.4105	0.5269	0.5059
MTRDCTL	0.2707	0.3178	0.4609	0.3715	0.4823
MINSPR	0.3486	0.3934	0.4149	0.3686	0.5179
MINS2	0.3764	0.4317	0.2725	0.5364	0.3776
MDSCPWR	0.2211	0.3568	0.2668	0.4339	0.4286
MGOALST	0.2141	0.4385	0.2466	0.3405	0.2809
MDEMSTL	0.4907	0.3072	0.5517	0.6115	0.5388
MPLFCS	0.4410	0.3973	0.3446	0.3576	0.5702
MLTFCS	0.5796	0.3278	0.3972	0.3455	0.4458
MCHAMP	0.4602	0.4008	0.5506	0.6793	0.5297
MSOPCE	0.3919	0.3836	0.4323	0.4961	0.6025
COPNCOM	0.2123	0.4340	0.4042	0.2684	0.4581

	MSKLDEV	MCESTR	MINNEXP	MOVRCRL	MFURORI
CNOTURF	0.3091	0.4527	0.2421	0.2131	0.2890
CSYNER	0.5122	0.5364	0.3080	0.4893	0.3152
CCOMHI	0.3823	0.2264	0.3056	0.3647	0.2639
COPFB	0.2873	0.4449	0.3243	0.5073	0.2971
CINFOEX	0.3883	0.4133	0.2457	0.4350	0.3950
CIDEASHR	0.3890	0.4040	0.3998	0.4394	0.3574
EPROBSL	0.4323	0.3920	0.3764	0.5095	0.5188
EEXITE	0.3563	0.4103	0.3068	0.4600	0.4817
EEXPER	0.3713	0.4979	0.4278	0.5996	0.6683
EIDEAEN	0.2820	0.3097	0.4594	0.4782	0.4901
EOPCUL	0.3831	0.3197	0.2434	0.4934	0.4488
ECNTRCLM	0.4514	0.4336	0.3458	0.5672	0.4484
ECTRCL2	0.3610	0.4409	0.2536	0.4770	0.4619
EINLRNG	0.4539	0.5119	0.4334	0.5621	0.5413
ELRNCUL2	0.3420	0.4071	0.3627	0.5851	0.4038
ENOTURF	0.2638	0.3222	0.3229	0.3229	0.1861
ECEFRDM	0.1513	0.3178	0.3219	0.5512	0.3718
ESERND	0.2847	0.3679	0.2782	0.3691	0.2565
EREWRD	0.2900	0.4043	0.3695	0.4730	0.2987
ERESOUR	0.2374	0.2665	0.2972	0.4729	0.3558
SFLTSTR	0.4418	0.5017	0.3169	0.6400	0.4632
SCETEAM	0.4558	0.3067	0.3280	0.4696	0.2899
SINTCAP	0.3207	0.3744	0.2531	0.3711	0.4335
SGENSTR	0.4421	0.6450	0.2539	0.4528	0.4807
SSUBSY	0.3587	0.3207	0.6003	0.5307	0.4211
SSYSPL	0.3991	0.4485	0.4599	0.4378	0.3720
SSCESTR	0.3474	0.5405	0.5522	0.6644	0.6188
SSCEST2	0.3618	0.3710	0.3955	0.3751	0.3849
SSGLSUP	0.4620	0.4112	0.2512	0.5242	0.2727

	MFURORI	MSKLDEV	MCESTR	MINNEXP	MOVRCRL
SSNWVEN	0.3724	0.5104	0.3433	0.3948	0.3482
SSADAP	0.2304	0.4288	0.4561	0.4870	0.4974
SSADMST	0.3023	0.3654	0.1906	0.3997	0.2895
SSVENML	0.3906	0.3639	0.3857	0.5618	0.4688
RRSKSUP	0.3810	0.4276	0.4119	0.3069	0.4322
RRSKSTR	0.3378	0.5333	0.1918	0.4734	0.2467
RRSKRES	0.2264	0.5116	0.2343	0.3728	0.3922
RRSKTRU	0.4543	0.4111	0.3232	0.5485	0.3299
ICREASYS	0.4201	0.5010	0.3340	0.5365	0.4313
ICREASR	0.1816	0.3926	0.1185	0.5027	0.3589
IINNMAN	0.1937	0.4871	0.2605	0.3788	0.4557
IPRCSMD	0.3398	0.5445	0.3024	0.4692	0.3888
IINPROM	0.2742	0.2532	0.1786	0.3613	0.2699

	MEMPWR	MTRDCTL	MINSPR	MINSP2	MDSCPWR
MEMPWR	1.0000				
MTRDCTL	0.4121	1.0000			
MINSPR	0.4534	0.5833	1.0000		
MINSP2	0.5644	0.3027	0.4830	1.0000	
MDSCPWR	0.5142	0.2544	0.2675	0.4836	1.0000
MGOALST	0.5005	0.3477	0.3076	0.4520	0.4888
MDEMSTL	0.5701	0.4323	0.5537	0.4600	0.4670
MPLFCS	0.5619	0.4148	0.4175	0.4886	0.4293
MLTFCS	0.3358	0.2916	0.3691	0.1932	0.1723
MCHAMP	0.5034	0.3952	0.4254	0.3423	0.2609
MSOPCE	0.4733	0.3925	0.4329	0.2343	0.3844
COPNCOM	0.4582	0.3631	0.4876	0.4199	0.3724
CNOTURF	0.4904	0.2466	0.3498	0.4370	0.3098
CSYNER	0.5590	0.1220	0.3866	0.5931	0.4741
CCOMHI	0.3960	0.3219	0.4006	0.2640	0.2032
COPFB	0.5170	0.3828	0.3321	0.5174	0.5125
CINFOEX	0.5266	0.3659	0.4658	0.5958	0.4265
CIDEASHR	0.5701	0.4254	0.5296	0.5745	0.3624
EPROBSL	0.5512	0.4562	0.5259	0.5208	0.3747
EEXITE	0.5477	0.2821	0.4342	0.5584	0.3709
EEXPER	0.5761	0.4468	0.5076	0.4552	0.3697
EIDEAEN	0.5588	0.5900	0.5363	0.4708	0.4555
EOPCUL	0.4630	0.0959	0.3721	0.4405	0.4056
ECNTRCLM	0.5739	0.4033	0.4522	0.6480	0.4636
ECTRCL2	0.4628	0.2912	0.5342	0.5102	0.3663
EINLRNG	0.5884	0.5546	0.6059	0.6566	0.5146
ELRNCUL2	0.5500	0.3472	0.4167	0.4648	0.5038
ENOTURF	0.3442	0.2132	0.2929	0.4470	0.1694
ECEFRDM	0.3597	0.1540	0.2487	0.2828	0.3574
ESERNND	0.4482	0.3246	0.3107	0.4268	0.2275
EREWRD	0.3412	0.1204	0.3968	0.4454	0.3393
ERESOUR	0.3406	0.1389	0.4351	0.4162	0.3070
SFLTSTR	0.5090	0.1658	0.4183	0.6378	0.5236
SCETEAM	0.2906	0.3276	0.3953	0.3342	0.2603
SINTCAP	0.3086	0.1052	0.3951	0.3219	0.2198
SGENSTR	0.4610	0.2119	0.5219	0.5143	0.3808
SSUBSY	0.2967	0.3584	0.4481	0.4113	0.3159
SSYSPL	0.4012	0.4341	0.5811	0.4918	0.2998
SSCESTR	0.5098	0.5179	0.5505	0.5263	0.4696
SSCEST2	0.4287	0.3574	0.3043	0.3913	0.2610
SSGLSUP	0.4318	0.1988	0.3994	0.5915	0.2649
SSNWVEN	0.3875	0.2274	0.3562	0.5512	0.3683
SSADAP	0.5464	0.4504	0.4683	0.4686	0.3168
SSADMST	0.2643	0.0675	0.2643	0.3599	0.1292
SSVENML	0.4288	0.4181	0.5796	0.5522	0.3295
RRSKSUP	0.3361	0.1603	0.3243	0.3597	0.3319

	MEMPWR	MTRDCTL	MINSR	MINSP2	MDSCPWR
RRSKSTR	0.3351	0.2768	0.4121	0.3648	0.4612
RRSKRES	0.4170	0.2596	0.5267	0.4456	0.3188
RRSKTRU	0.4876	0.2707	0.3253	0.4473	0.4216
ICREASYS	0.5079	0.3190	0.5188	0.5710	0.4333
ICREASR	0.5426	0.1311	0.3637	0.5819	0.4269
IINNMAN	0.4621	0.2227	0.5005	0.4300	0.2130
IPRCMD	0.4082	0.1443	0.4971	0.4231	0.2741
IINPROM	0.2672	0.1903	0.2783	0.4735	0.4319

	MGOALST	MDEMSTL	MPLFCS	MLTFCS	MCHAMP
MGOALST	1.0000				
MDEMSTL	0.3738	1.0000			
MPLFCS	0.4346	0.5401	1.0000		
MLTFCS	0.1620	0.5607	0.3930	1.0000	
MCHAMP	0.4414	0.6356	0.3950	0.4475	1.0000
MSOPCE	0.2313	0.5775	0.4162	0.5142	0.5691
COPNCOM	0.4588	0.4583	0.4205	0.4248	0.2560
CNOTURF	0.5559	0.2549	0.5345	0.1553	0.2745
CSYNER	0.4626	0.4272	0.3721	0.3664	0.4995
CCOMHI	0.2600	0.5315	0.3541	0.5268	0.4650
COPFB	0.5994	0.4099	0.3853	0.1476	0.4969
CINFOEX	0.5186	0.3673	0.4036	0.3257	0.3867
CIDEASHR	0.5022	0.3374	0.3379	0.1890	0.3869
EPROBSL	0.4055	0.5328	0.6447	0.3629	0.5230
EEXITE	0.3916	0.4204	0.5069	0.3729	0.4191
EEXPER	0.3777	0.5429	0.6721	0.3999	0.4730
EIDEAEN	0.4933	0.5737	0.5079	0.2153	0.5354
EOPCUL	0.1493	0.4365	0.4468	0.4173	0.3583
ECNTRCLM	0.5945	0.4679	0.5071	0.3228	0.5679
ECTRCL2	0.5151	0.3502	0.3962	0.3390	0.4322
EINLRNG	0.4762	0.5881	0.6022	0.3220	0.5081
ELRNCUL2	0.4222	0.5011	0.4162	0.2939	0.4174
ENOTURF	0.3659	0.3053	0.2349	0.3199	0.2881
ECEFRDM	0.3382	0.2708	0.2502	0.2474	0.3899
ESERND	0.3181	0.3069	0.3547	0.1702	0.3327
EREWRD	0.1159	0.3321	0.2037	0.3582	0.2974
ERESOUR	0.3012	0.3823	0.1310	0.2226	0.3550
SFLTSTR	0.4509	0.4972	0.3717	0.3677	0.5512
SCETEAM	0.1970	0.3121	0.1999	0.4035	0.4071
SINTCAP	0.2557	0.2804	0.2597	0.2668	0.4752
SGENSTR	0.3824	0.4467	0.5005	0.4466	0.4819
SSUBSY	0.2740	0.5802	0.3315	0.5403	0.5131
SSSYSPL	0.3283	0.3533	0.4482	0.2584	0.4190

	MGOALST	MDEMSTL	MPLFCS	MLTFCS	MCHAMP
SSCESTR	0.5090	0.6454	0.5272	0.4874	0.5532
SSCEST2	0.2362	0.4854	0.3855	0.3496	0.3667
SSGLSUP	0.4094	0.3907	0.4203	0.3013	0.5209
SSNWVEN	0.3086	0.4211	0.2366	0.2697	0.4085
SSADAP	0.2817	0.5206	0.3856	0.2171	0.4228
SSADMST	0.1380	0.2549	0.2700	0.3382	0.4567
SSVENML	0.2920	0.4680	0.2689	0.2141	0.4948
RRSKSUP	0.2582	0.4006	0.4135	0.5370	0.3825
RRSKSTR	0.4173	0.3739	0.2797	0.3067	0.2511
RRSKRES	0.2587	0.3932	0.3807	0.3729	0.3534
RRSKTRU	0.4923	0.5668	0.4439	0.4224	0.5491
ICREASYS	0.5611	0.4453	0.4275	0.3956	0.5252
ICREASR	0.4056	0.3723	0.3354	0.0945	0.2976
IINNMAN	0.4545	0.3552	0.3738	0.2724	0.4543
IPRCSMD	0.3302	0.3747	0.2887	0.4451	0.3716
IINPROM	0.2733	0.3022	0.2285	0.2682	0.3457

	MSOPCE	COPNCOM	CNOTURF	CSYNER	CCOMHI
MSOPCE	1.0000				
COPNCOM	0.4772	1.0000			
CNOTURF	0.1241	0.4405	1.0000		
CSYNER	0.3176	0.3374	0.4998	1.0000	
CCOMHI	0.4888	0.4388	0.2890	0.3590	1.0000
COPFB	0.4214	0.3222	0.3883	0.4761	0.2835
CINFOEX	0.3873	0.4842	0.4350	0.5477	0.4495
CIDEASHR	0.2280	0.3315	0.4842	0.4767	0.2410
EPROBSL	0.5263	0.4048	0.4308	0.4584	0.4404
EEXITE	0.2225	0.3474	0.4255	0.5584	0.3205
EEXPER	0.5860	0.4902	0.4792	0.4239	0.4388
EIDEAEN	0.4398	0.4079	0.4203	0.3984	0.2331
EOPCUL	0.4931	0.3088	0.2163	0.4715	0.2626
ECNTRCLM	0.3664	0.4849	0.5132	0.4930	0.4029
ECTRCL2	0.2419	0.3609	0.3876	0.4199	0.2663
EINLRNG	0.3653	0.4072	0.5300	0.5390	0.3736
ELRNCUL2	0.4333	0.4490	0.4630	0.5443	0.2918
ENOTURF	0.1986	0.4001	0.3186	0.4158	0.2491
ECEFRDM	0.2175	0.1738	0.1902	0.2285	0.1415
ESERN	0.2284	0.2791	0.2292	0.3811	0.1771
ERWRD	0.1920	0.2770	0.2191	0.4992	0.2371
ERESOUR	0.1407	0.3187	0.2481	0.5160	0.1414
SFLTSTR	0.4278	0.4238	0.4051	0.7790	0.3533
SCETEAM	0.2576	0.1717	0.0433	0.4346	0.2589
SINTCAP	0.2787	0.2158	0.1987	0.4268	0.1058
SGENSTR	0.4406	0.3617	0.4267	0.6205	0.3416
SSUBSY	0.4015	0.4764	0.3023	0.3978	0.4717

	MSOPCE	COPNCOM	CNOTURF	CSYNER	CCOMHI
SSSYSPL	0.2130	0.2713	0.4114	0.4783	0.3557
SSCESTR	0.5355	0.6103	0.3456	0.3653	0.4751
SSCEST2	0.4575	0.3442	0.2819	0.3662	0.3922
SSGLSUP	0.2582	0.2719	0.2888	0.5487	0.2432
SSNWVEN	0.2873	0.3502	0.2117	0.5398	0.2937
SSADAP	0.4912	0.4221	0.3098	0.3645	0.4614
SSADMST	0.3452	0.2418	0.1950	0.3571	0.2907
SSVENML	0.3230	0.2419	0.3299	0.4434	0.1866
RRSKSUP	0.3431	0.4204	0.3440	0.5771	0.4233
RRSKSTR	0.2790	0.3882	0.3629	0.4150	0.2627
RRSKRES	0.4215	0.3729	0.3957	0.4403	0.2386
RRSKTRU	0.3084	0.3686	0.4956	0.5439	0.5162
ICREASYS	0.3204	0.4027	0.4079	0.5572	0.3504
ICREASR	0.1498	0.1927	0.4209	0.4755	0.1868
IINMAN	0.3782	0.3840	0.4386	0.4301	0.2251
IPRCSMD	0.3266	0.3790	0.3837	0.5594	0.2455
IINPROM	0.2661	0.2387	0.0560	0.3666	0.1955

	COPFB	CINFOEX	CIDEASHR	EPROBSL	EEXITE
COPFB	1.0000				
CINFOEX	0.4640	1.0000			
CIDEASHR	0.4562	0.5418	1.0000		
EPROBSL	0.4071	0.3606	0.3666	1.0000	
EEXITE	0.3372	0.3892	0.5275	0.5442	1.0000
EEXPER	0.4475	0.5141	0.4091	0.5686	0.5611
EIDEAEN	0.4845	0.3753	0.4997	0.5891	0.4083
EOPCUL	0.1906	0.3428	0.3077	0.4603	0.4772
ECNTRCLM	0.5244	0.7124	0.5709	0.4972	0.5445
ECTRCL2	0.3222	0.4648	0.5647	0.4758	0.5955
EINLRNG	0.5114	0.5522	0.6064	0.6424	0.5426
ELRNCUL2	0.3223	0.4734	0.5039	0.5030	0.3702
ENOTURF	0.3488	0.4750	0.4618	0.3107	0.2572
ECEFRDM	0.4289	0.1691	0.3896	0.3333	0.4647
ESERND	0.4152	0.3679	0.3450	0.3297	0.2926
EREWRD	0.2456	0.3531	0.4639	0.2241	0.4677
ERESOUR	0.1788	0.3008	0.4405	0.2704	0.5663
SFLTSTR	0.4173	0.6116	0.5063	0.4711	0.5406
SCETEAM	0.2803	0.4165	0.3845	0.4111	0.3615
SINTCAP	0.0882	0.3248	0.3734	0.2820	0.3754
SGENSTR	0.3608	0.6180	0.4560	0.4318	0.5131
SSUBSY	0.2547	0.4574	0.3787	0.3079	0.3248
SSSYSPL	0.4126	0.3763	0.5897	0.4840	0.4387
SSCESTR	0.4839	0.5262	0.3923	0.5225	0.3831
SSCEST2	0.3968	0.2438	0.2009	0.5070	0.3479
SSGLSUP	0.4107	0.5489	0.5443	0.4532	0.5259
SSNWVEN	0.3619	0.4274	0.4442	0.2728	0.3675

COPFB	CINFOEX	CIDEASHR	EPROBSL	EEXITE	COPFB
SSADAP	0.4582	0.3826	0.2501	0.4277	0.3570
SSADMST	0.2861	0.4206	0.2556	0.2673	0.2614
SSVENML	0.2467	0.4222	0.5830	0.5003	0.4093
RRSKSUP	0.2328	0.3826	0.2805	0.3953	0.4104
RRSKSTR	0.3009	0.3730	0.4216	0.3229	0.2795
RRSKRES	0.2261	0.3645	0.3929	0.4096	0.3830
RRSKTRU	0.3936	0.3860	0.3865	0.4673	0.5395
ICREASYS	0.4451	0.5840	0.6205	0.4128	0.6510
ICREASR	0.4065	0.4345	0.4996	0.3165	0.4822
IINNMAN	0.3002	0.4950	0.5476	0.3881	0.3725
IPRCSMD	0.1935	0.5109	0.5663	0.3201	0.4686
IINPROM	0.2101	0.4433	0.3834	0.1523	0.3505

	EEXPER	EIDEAEN	EOPCUL	ECNTRCLM	ECTRCL2
EEXPER	1.0000				
EIDEAEN	0.4381	1.0000			
EOPCUL	0.4559	0.2625	1.0000		
ECNTRCLM	0.5881	0.5668	0.2944	1.0000	
ECTRCL2	0.4532	0.3434	0.5215	0.5115	1.0000
EINLRNG	0.6187	0.5757	0.4123	0.6124	0.5843
ELRNCUL2	0.5152	0.5405	0.5118	0.4584	0.4993
ENOTURF	0.2896	0.2947	0.3358	0.3951	0.2551
ECEFRDM	0.4502	0.2883	0.2910	0.3678	0.5789
ESERND	0.3728	0.4265	0.1192	0.4930	0.2023
EREWRD	0.3473	0.1247	0.5065	0.2688	0.5115
ERESOUR	0.2643	0.4302	0.4391	0.4273	0.5932
SFLTSTR	0.4528	0.4613	0.5933	0.5152	0.5354
SCETEAM	0.1992	0.2931	0.2144	0.3819	0.2834
SINTCAP	0.3007	0.3133	0.3667	0.3171	0.5966
SGENSTR	0.5950	0.2673	0.5379	0.5050	0.5967
SSUBSY	0.3970	0.3330	0.3373	0.4216	0.3521
SSSYSPL	0.4061	0.4357	0.2618	0.4603	0.5598
SSCESTR	0.6314	0.4075	0.4224	0.5260	0.5790
SSCEST2	0.4946	0.4832	0.2499	0.4201	0.1956
SSGLSUP	0.4333	0.3077	0.4896	0.5460	0.6914
SSNWVEN	0.2249	0.2671	0.3674	0.3983	0.4931
SSADAP	0.6250	0.5045	0.2168	0.4335	0.1798
SSADMST	0.4185	0.1740	0.3349	0.4063	0.4064
SSVENML	0.3542	0.5606	0.4187	0.4172	0.4855
RRSKSUP	0.3428	0.2113	0.4642	0.3467	0.3701
RRSKSTR	0.3251	0.3896	0.3221	0.4338	0.5257
RRSKRES	0.4336	0.3344	0.6398	0.3430	0.5776
RRSKTRU	0.5211	0.3954	0.3832	0.5758	0.4752
ICREASYS	0.5184	0.4489	0.3304	0.6826	0.6864
ICREASR	0.4394	0.4521	0.4161	0.4440	0.4852

	EEXPER	EIDEAEN	EOPCUL	ECNTRCLM	ECTRCL2
IINNMAN	0.5383	0.3883	0.4067	0.4991	0.5938
IPRCSMD	0.4679	0.2315	0.4609	0.3597	0.5791
IINPROM	0.2809	0.2067	0.4942	0.3572	0.3858

	EINLRNG	ELRNCUL2	ENOTURF	ECEFRDM	ESERND
EINLRNG	1.0000				
ELRNCUL2	0.6320	1.0000			
ENOTURF	0.4544	0.4460	1.0000		
ECEFRDM	0.3536	0.2788	0.1016	1.0000	
ESERND	0.4660	0.3699	0.4580	0.1870	1.0000
EREWRD	0.5334	0.4736	0.3815	0.4712	0.2444
ERESOUR	0.4049	0.5209	0.2925	0.3361	0.1500
SFLTSTR	0.5192	0.6303	0.4567	0.3380	0.3709
SCETEAM	0.4143	0.3365	0.3199	0.2743	0.5328
SINTCAP	0.3413	0.3832	0.1854	0.4256	0.0892
SGENSTR	0.6390	0.4720	0.3546	0.3471	0.3117
SSUBSY	0.4707	0.4854	0.4099	0.2162	0.2516
SSSYSPL	0.5680	0.3362	0.2765	0.4408	0.3809
SSCESTR	0.5962	0.5661	0.3805	0.4803	0.3522
SSCEST2	0.4653	0.3030	0.3256	0.1930	0.4305
SSGLSUP	0.5538	0.3819	0.3850	0.4910	0.2971
SSNWVEN	0.5286	0.3972	0.4085	0.1653	0.3398
SSADAP	0.5067	0.3606	0.3131	0.2638	0.3763
SSADMST	0.4222	0.2730	0.2235	0.3477	0.2652
SSVENML	0.6489	0.5692	0.3939	0.1683	0.3326
RRSKSUP	0.3984	0.3871	0.2372	0.2553	0.0968
RRSKSTR	0.4607	0.5492	0.3094	0.4564	0.3486
RRSKRES	0.6068	0.6216	0.3723	0.2351	0.2336
RRSKTRU	0.5930	0.5119	0.3089	0.4878	0.4524
ICREASYS	0.6214	0.4382	0.3361	0.5526	0.4152
ICREASR	0.4883	0.3686	0.2165	0.4725	0.3144
IINNMAN	0.5124	0.4892	0.4157	0.3340	0.3974
IPRCSMD	0.4993	0.5530	0.3266	0.3543	0.2731
IINPROM	0.4370	0.3330	0.3879	0.1479	0.2372

	EREWRD	ERESOUR	SFLTSTR	SCETEAM	SINTCAP
EREWRD	1.0000				
ERESOUR	0.4583	1.0000			
SFLTSTR	0.5245	0.5930	1.0000		
SCETEAM	0.4161	0.2333	0.4604	1.0000	
SINTCAP	0.4860	0.5477	0.5458	0.2942	1.0000
SGENSTR	0.5670	0.3815	0.6659	0.4214	0.5159
SSUBSY	0.4936	0.4157	0.5439	0.3610	0.2883
SSSYSPL	0.5649	0.3410	0.4122	0.4297	0.4347
SSCESTR	0.4498	0.2628	0.5411	0.3785	0.3817
SSCEST2	0.1448	0.1796	0.2698	0.1351	0.0317
SSGLSUP	0.5454	0.4565	0.5445	0.3037	0.5382
SSNWVEN	0.5004	0.4234	0.5236	0.3524	0.3805
SSADAP	0.3436	0.2376	0.3561	0.2298	0.2382
SSADMST	0.5292	0.1786	0.3994	0.2125	0.4027
SSVENML	0.4057	0.5033	0.5907	0.3991	0.3767
RRSKSUP	0.4442	0.2983	0.4357	0.3449	0.2588
RRSKSTR	0.4741	0.3973	0.4982	0.3876	0.3817
RRSKRES	0.5575	0.4335	0.5368	0.2288	0.4421
RRSKTRU	0.4716	0.3746	0.5619	0.3917	0.2849
ICREASYS	0.5457	0.5424	0.6165	0.4829	0.5990
ICREASR	0.4167	0.4831	0.5746	0.2071	0.3682
IINNMAN	0.3750	0.3644	0.5233	0.2094	0.4718
IPRCMD	0.6014	0.4121	0.5954	0.3897	0.4553
IINPROM	0.4998	0.3154	0.4748	0.3337	0.3303

	SGENSTR	SSUBSY	SSSYSPL	SSCESTR	SSCEST2
SGENSTR	1.0000				
SSUBSY	0.3631	1.0000			
SSSYSPL	0.4811	0.4299	1.0000		
SSCESTR	0.4987	0.6565	0.5097	1.0000	
SSCEST2	0.2445	0.3050	0.2733	0.4160	1.0000
SSGLSUP	0.6339	0.3402	0.6061	0.4682	0.2403
SSNWVEN	0.4977	0.4538	0.4712	0.5139	0.4521
SSADAP	0.3895	0.3386	0.3909	0.4832	0.5720
SSADMST	0.6051	0.1827	0.4467	0.3795	0.1863
SSVENML	0.4931	0.4680	0.4530	0.4211	0.2825
RRSKSUP	0.4810	0.4025	0.4318	0.3887	0.1915
RRSKSTR	0.4971	0.3975	0.4879	0.4988	0.2523
RRSKRES	0.6849	0.4026	0.2966	0.4637	0.2317
RRSKTRU	0.5595	0.4288	0.4632	0.4948	0.4276
ICREASYS	0.6510	0.4506	0.6178	0.5553	0.2601
ICREASR	0.5059	0.1967	0.4059	0.3535	0.2266
IINNMAN	0.5943	0.3668	0.4197	0.5185	0.2687
IPRCMD	0.6958	0.4727	0.4308	0.5249	0.1978
IINPROM	0.4779	0.3179	0.2542	0.3372	0.2394

	SSGLSUP	SSNWVEN	SSADAP	SSADMST	SSVENML
SSGLSUP	1.0000				
SSNWVEN	0.4678	1.0000			
SSADAP	0.2124	0.3757	1.0000		
SSADMST	0.5947	0.3616	0.3419	1.0000	
SSVENML	0.4335	0.3981	0.3702	0.2906	1.0000
RRSKSUP	0.3811	0.3767	0.2076	0.3628	0.1847
RRSKSTR	0.3676	0.4570	0.3053	0.2675	0.3906
RRSKRES	0.4080	0.3973	0.2538	0.4003	0.5061
RRSKTRU	0.4859	0.3645	0.4104	0.3852	0.3001
ICREASYS	0.7151	0.4687	0.3575	0.4878	0.4988
ICREASR	0.4871	0.2749	0.3561	0.3126	0.4670
IINNMAN	0.5180	0.4395	0.2664	0.4665	0.4088
IPRCSMD	0.5798	0.4698	0.2110	0.5020	0.5132
IINPROM	0.4628	0.5284	0.3213	0.4407	0.3599

	RRSKSUP	RRSKSTR	RRSKRES	RRSKTRU	ICREASYS
RRSKSUP	1.0000				
RRSKSTR	0.3662	1.0000			
RRSKRES	0.4151	0.4867	1.0000		
RRSKTRU	0.4321	0.4928	0.3840	1.0000	
ICREASYS	0.3264	0.5369	0.4439	0.5346	1.0000
ICREASR	0.1739	0.4493	0.3833	0.5031	0.5951
IINNMAN	0.3683	0.4415	0.6149	0.4206	0.5136
IPRCSMD	0.4150	0.4767	0.5577	0.4500	0.5753
IINPROM	0.2529	0.2882	0.3929	0.4042	0.4744

	ICREASR	IINNMAN	IPRCSMD	IINPROM
ICREASR	1.0000			
IINNMAN	0.4903	1.0000		
IPRCSMD	0.4696	0.6618	1.0000	
IINPROM	0.2848	0.2931	0.4249	1.0000

APPENDIX I**FACTOR ANALYSIS RESULTS**

Dimension	Factor 1
MEMPWR	.752
MCHAMP	.739
MDEMSTL	.708
SSGLSUP	.704
CIDEASHR	.672
EIDEAEN	.646
ICREASR	.608
SINTCAP	.588
SEREWRD	.541
MSOPCE	.520

APPENDIX J**FINAL MODEL DIMENSIONS**

Key factor Innovativeness	Key factor Proactiveness	Key factor Management
Product lines	New techniques	Goals
Product changes	Competitive posture	Creativity and innovation system
R&D leadership	Risk-taking propensity	Rewards
	Environmental boldness	<i>Intracapital</i>
	Decision-making style	Communication System
		Staff input
		Intrapreneurial freedom
		Problem solving Culture
		Intrapreneurship championing
		Staff empowered

APPENDIX K

THE FOLLOW-UP LETTER

The Director

company name

company address

Dear ***name***

I wrote to your organisation late last year to ask for assistance in 2002 with my study, which concerns entrepreneurship in organisations. You also received an e-mail copy of this letter.

The first phase of the study was completed successfully and I now need to examine executives' views on entrepreneurial issues. I have distilled a short questionnaire (18 questions) from the first phase, which is quick and easy to complete.

An executive of the organisation that is familiar with the organisation's strategy should complete the questionnaire. The views expressed should represent the organisation as a whole.

To reciprocate I will provide each participating company with the study results

I understand that executives' time is precious, but would greatly appreciate your participation.

Please do not hesitate to contact me should you have any questions.

Fax 012 321 2236, Tel. 012 319 2177 Cell 082 4604791

Thanking you in advance

Chris Goosen

(University of Stellenbosch - Student No 10562095/1974)

APPENDIX L**INTRAPRENEURSHIP INDEX**

Organisation	Intrapreneurship index	Innovativeness	Proactiveness	Management
23068	5.900	6.00	4.8	6.4
23530	3.608	5.00	3.2	4.5
22448	4.595	5.33	5.4	5.6
23514	5.001	6.00	5.2	6.3
22545	4.524	6.33	5.2	5.1
23111	3.030	4.67	3.8	3.1
23382	4.993	6.33	6	5.8
22491	4.122	5.33	4.8	4.8
23522	4.746	5.67	5.4	5.8
23471	4.454	4.33	3.8	6.4
32397	3.685	5.00	3.6	4.5
32869	3.249	5.33	5.4	2.6
33098	4.160	4.67	5	5.1
32936	3.631	4.00	4.8	4.3
32885	2.672	3.33	4.2	2.7
32537	4.486	6.33	5	5.1
42945	2.806	5.00	3.2	2.7
42492	4.453	5.00	5	5.6
43193	4.681	5.33	5.4	5.8
42942	4.488	6.33	5	5.1
42818	4.513	5.00	6	5.3
42670	2.670	3.67	2	3.5
43666	3.928	4.00	5.4	4.7
52878	4.909	6.00	5.4	6.0
53026	4.787	6.00	6.2	5.4
52619	4.367	6.00	5.4	4.8
52649	4.093	5.00	5	4.8
52886	3.069	4.00	4.2	3.3
52463	4.081	5.67	3.8	5.0
62436	3.595	4.33	4	4.4
62738	3.442	4.33	3.2	4.4
72434	3.810	5.00	4.2	4.5
82615	3.939	4.33	4.2	5.1
92446	3.323	3.33	4.8	3.9
92578	4.564	6.33	5.4	5.1
93050	4.055	5.33	4	5.0
102646	3.036	2.00	5.4	3.6
102584	5.047	6.00	5.2	6.4
112417	3.205	4.67	4	3.4
122512	4.095	5.00	5	4.8
132758	2.845	4.00	4.2	2.8

Organisation	Intrapreneurship index	Innovativeness	Proactiveness	Management
142683	5.066	6.67	5.8	5.9
142877	2.553	4.67	2	2.8
142454	3.010	4.67	4.6	2.7
142920	2.174	2.33	2.4	2.8
143377	3.794	4.67	5.2	4.2
142904	4.700	5.67	5.6	5.6
142885	4.108	5.00	3.2	5.6
142936	4.421	6.00	5	5.1
142861	3.523	5.00	4.8	3.6
143722	4.631	5.00	5	6.0
143428	3.201	4.67	4.2	3.3
152546	4.302	5.67	5.4	4.8
152794	3.928	4.67	3.8	5.1
152856	3.861	3.67	4	5.3
152883	4.363	6.33	4.6	5.0
152826	4.815	5.67	6.2	5.6
162382	4.252	6.33	3.8	5.1
162522	3.308	5.33	3.6	3.5
173283	4.616	5.00	5.4	5.8
172377	3.750	5.33	3.6	4.5
172641	4.081	5.67	3.8	5.0
182753	3.053	3.33	3.4	3.9
183071	3.059	6.67	2.6	2.8
182413	3.140	5.33	4.60	2.7
182421	4.392	5.33	4.80	5.4
193528	3.612	4.33	3.20	4.8
193093	4.786	4.67	5.20	6.4
192651	4.568	5.67	5.60	5.3
194178	2.856	3.33	4.00	3.2
193978	4.390	5.67	5.40	5.0
193461	5.047	6.00	5.20	6.4
193838	4.622	6.33	5.20	5.3
193453	3.396	4.67	3.60	4.0
193903	3.967	4.00	5.60	4.7
202452	4.664	6.33	5.00	5.5
203072	4.007	5.33	5.40	4.3
202705	4.107	4.67	5.40	4.8
202902	3.548	5.33	6.00	3.0
212579	2.366	4.33	4.20	1.6
222593	3.875	6.33	4.40	4.0
222609	2.933	4.67	4.20	2.7
232394	2.588	2.33	3.60	3.2
232515	0.975	1.00	1.00	1.3
232736	4.725	6.00	5.40	5.6
232845	3.990	5.33	4.80	4.5

APPENDIX M**ORGANISATION GROUPING DATA**

Organisation	Turnover	Number employees	Beta coefficient	Age	Productivity ratios
22448	6009	8412	0.32	76	714
22491	6972	12625	1.12	53	552
22545	4653	16509	0.66	15	281
23068	963	1628	1.07	32	591
23111	117	246	1.74	51	475
23382	204	200	1.09	19	1017
23471	884	898	0.85	33	984
23514	159	104	1.53	3	1530
23522	608	1744	0.97	5	348
23530	554	3169	0.98	25	174
32397	21969	21966	0.92	98	1000
32537	209	400	1.57	56	522
32869	825	1317	0.60	16	626
32885	464	618	1.40	13	751
32936	92	270	0.81	28	340
33098	1439	1789	0.36	32	804
42492	1576	1642	0.85	54	959
42670	117	2857	0.67	87	41
42818	205	541	1.33	36	379
42942	5	1156	-0.04	20	4
42945	956	1396	0.03	22	684
43193	2818	3929	1.06	38	717
43666	517	1082	1.94	98	477
52463	4695	9453	0.70	97	496
52619	1101	1673	0.81	81	658
52649	1943	10273	1.18	17	189
52878	12217	4135	1.68	13	2954
52886	45	160	0.90	54	278
53026	734	840	1.77	3	874
62436	1571	7621	1.29	50	206
62738	727	44	0.74	5	16519
72434	2647	8044	0.82	63	329
82615	1076	1226	1.61	45	877
92446	2863	11018	0.30	31	259
92578	4522	4829	0.53	40	936
93050	2467	5864	-0.14	150	420
102584	3942	22116	0.51	94	178

Organisation	Turnover	Number employees	Beta coefficient	Age	Productivity ratios
102646	336	659	0.24	4	510
112417	14498	23935	0.67	49	605
122512	3367	9704	1.30	19	346
132758	36	208	0.63	21	173
142454	3219	1672	0.84	54	1925
142683	455	570	1.03	25	798
142861	459	1636	1.28	17	280
142877	13318	26098	0.36	52	510
142885	1859	3929	0.91	17	473
142904	8209	9470	1.21	9	866
142920	255	9509	0.10	58	26
142936	35146	504	1.00	54	69734
143377	6008	3000	7.02	6	2002
143428	2260	1478	1.01	114	1529
143722	1030	2281	0.23	32	451
152546	1553	946	0.92	13	1641
152794	9854	15559	0.95	32	633
152826	2849	16000	1.25	4	178
152856	7146	1098	1.26	85	6508
152883	213	1033	-0.37	24	206
162382	3998	5300	0.99	4	754
162522	1747	1345	0.51	82	1299
172377	247	12000	1.05	95	20
172641	27761	27900	1.05	35	995
173283	3560	2147	0.66	77	1658
182413	2029	7591	0.70	63	267
182421	3184	2268	0.83	112	1403
182753	687	2600	0.34	55	264
183071	2296	30521	0.72	45	75
192651	25762	14037	0.51	50	1835
193093	12	5184	1.26	13	2
193453	53	435	-0.12	40	122
193461	604	288	1.64	12	2095
193528	289	10385	0.49	63	27
193838	65	270	0.74	52	242
193903	160	181	2.83	16	885
193978	18309	1332	0.64	64	13745
194178	1895	663	0.41	32	2858
202452	260	20000	0.52	31	13
202705	1631	2635	0.73	33	619

Organisation	Turnover	Number employees	Beta coefficient	Age	Productivity ratios
202902	5365	301	0.45	108	17823
203072	18149	30000	0.67	79	604
212579	238	3310	0.63	49	72
222593	4585	206	0.61	33	22257
222609	214	206	0.00	17	1038
232394	54	279	0.27	40	192
232515	7720	210	0.65	32	36764
232736	180	942	1.07	27	191
232845	6359	9733	0.75	69	653

APPENDIX N
NON-RESPONSE BIAS

Company Financial Response
Code Index

1	51.95	Yes
2	38.86	Yes
3	32.92	Yes
4	27.45	Yes
5	26.56	Yes
6	25.71	Yes
7	23.53	Yes
8	22.88	Yes
9	17.26	Yes
10	15.50	Yes
11	15.32	Yes
12	14.39	Yes
13	13.95	Yes
14	13.75	Yes
15	13.65	Yes
16	13.37	Yes
17	13.35	Yes
18	12.73	Yes
19	12.61	Yes
20	12.39	Yes
21	12.38	Yes
22	12.21	Yes
23	12.16	Yes
24	12.16	Yes
25	11.96	Yes
26	11.95	Yes
27	11.66	Yes
28	11.54	Yes
29	11.36	Yes
30	11.09	Yes
31	11.07	Yes
32	10.92	Yes
33	10.65	Yes
34	10.56	Yes
35	10.38	Yes
36	10.27	Yes
37	10.26	Yes
38	9.94	Yes
39	9.28	Yes
40	9.04	Yes
41	8.79	Yes
42	8.77	Yes

Company Code	Financial Index	Response
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43	8.76	Yes
44	8.58	Yes
45	8.08	Yes
46	8.01	Yes
47	7.66	Yes
48	7.54	Yes
49	7.40	Yes
50	7.39	Yes
51	7.12	Yes
52	7.10	Yes
53	7.03	Yes
54	6.94	Yes
55	6.88	Yes
56	6.82	Yes
57	6.69	Yes
58	6.58	Yes
59	6.49	Yes
60	6.34	Yes
61	6.28	Yes
62	6.26	Yes
63	6.14	Yes
64	5.95	Yes
65	5.63	Yes
66	5.62	Yes
67	5.46	Yes
68	5.21	Yes
69	5.13	Yes
70	4.93	Yes
71	4.91	Yes
72	4.89	Yes
73	4.89	Yes
74	4.81	Yes
75	4.73	Yes
76	4.65	Yes
77	4.62	Yes
78	4.61	Yes
79	4.59	Yes
80	4.19	Yes
81	3.89	Yes
82	3.71	Yes
83	3.70	Yes
84	3.64	Yes
85	3.50	Yes
86	3.49	Yes
87	3.35	Yes

Company Code	Financial Index	Response
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88	3.32	Yes
89	3.17	Yes
90	3.05	Yes
91	2.99	Yes
92	2.90	Yes
93	2.56	Yes
94	2.51	Yes
95	2.44	Yes
96	2.31	Yes
97	2.31	Yes
98	2.17	Yes
99	2.14	Yes
100	2.00	Yes
101	1.97	Yes
102	1.81	Yes
103	1.70	Yes
104	1.62	Yes
105	1.48	Yes
106	1.23	Yes
107	1.15	Yes
108	0.81	Yes
109	0.79	Yes
110	0.68	Yes
111	0.22	Yes
112	0.13	Yes
113	-0.23	Yes
114	-0.27	Yes
115	-0.32	Yes
116	-1.00	Yes
117	-1.45	Yes
118	-2.21	Yes
119	-3.08	Yes
120	-3.60	Yes
121	-3.92	Yes
122	-4.05	Yes
123	-4.18	Yes
124	-4.82	Yes
125	-5.53	Yes
126	-5.71	Yes
127	-5.73	Yes
128	-6.16	Yes
129	-6.57	Yes
130	-8.16	Yes
131	101.67	No
132	50.93	No

Company Code	Financial Index	Response
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133	49.30	No
134	30.78	No
135	25.51	No
136	22.23	No
137	20.79	No
138	19.03	No
139	17.97	No
140	16.15	No
141	15.45	No
142	15.22	No
143	14.14	No
144	14.02	No
145	13.80	No
146	13.26	No
147	13.17	No
148	12.67	No
149	11.93	No
150	11.11	No
151	11.09	No
152	10.78	No
153	10.06	No
154	9.71	No
155	9.64	No
156	9.64	No
157	9.51	No
158	9.33	No
159	8.76	No
160	8.75	No
161	8.74	No
162	8.59	No
163	8.50	No
164	8.43	No
165	8.30	No
166	8.21	No
167	8.13	No
168	8.12	No
169	7.99	No
170	7.52	No
171	7.51	No
172	7.50	No
173	7.49	No
174	7.48	No
175	7.43	No
176	7.23	No
177	7.21	No

Company Financial Response
Code Index

178	7.16	No
179	7.12	No
180	6.98	No
181	6.89	No
182	6.81	No
183	6.74	No
184	6.66	No
185	6.20	No
186	5.94	No
187	5.93	No
188	5.92	No
189	5.51	No
190	5.07	No
191	4.96	No
192	4.79	No
193	4.76	No
194	4.40	No
195	4.39	No
196	4.21	No
197	3.94	No
198	3.85	No
199	3.72	No
200	3.54	No
201	3.43	No
202	3.32	No
203	3.26	No
204	2.73	No
205	1.87	No
206	1.61	No
207	1.53	No
208	1.36	No
209	1.15	No
210	1.10	No
211	0.72	No
212	-0.42	No
213	-0.50	No
214	-1.64	No
215	-2.67	No
216	-2.74	No
217	-6.43	No
218	-7.03	No
219	-29.10	No