THE STIMULATION OF INNOVATION ADVANTAGE THROUGH AUTONOMOUS INTRAPRENEURSHIP AT FEDERAL MOGUL SEALING SYSTEMS SOUTH AFRICA.

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RESEARCH SUPERVISOR: Ms Margaret Cullen
November 2006
DECLARATION

I, Beverley Ann Morgan, hereby declare that:

The work in this research paper is my own original work except where otherwise stated. Other sources used or referred to have been documented and acknowledged by complete referencing.

This research paper has not been previously submitted in full or partial fulfilment of the requirements for an equivalent or higher qualification at any other recognised education institution.

I hereby give consent for my dissertation, if accepted, to be available for photocopying and for interlibrary loan, and for the title and summary to be made available to outside organisations.

Signed: ............................

Beverley Ann Morgan

Date: 30 November 2006
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ABSTRACT

In the rapidly evolving organisational landscapes of today, the quest to grow or sustain competitive advantage demands that organisational practices become more innovative, hence innovative advantage. Globalisation and technological advances drive the necessity for innovation within organisational contexts and the resultant rapid pace of change demands that organisations adopt an intrapreneurial orientation to accommodate this need for innovation.

South African organisations, in particular those within the automotive sector, are faced with both unique opportunities and threats as a result of the increased impact of globalisation and the resultant open markets in the post-apartheid era. Programs offered by governmental institutions for this industry sector, such as the Motor Industry Development Programme (MIDP), as well as widely promoted systems such as those engendered by continuous improvement and benchmarking to achieve excellence, are successful only in attaining uniformity and incremental improvements and one-dimensional thinking methodologies.

The quest for innovation advantage requires increased creative activity to assist individuals within these organisations in adopting an intrapreneurial outlook to provide proactive solutions. The literature survey has revealed that top-down controls and centralised decision-making as provided by corporate entrepreneurship, is the antithesis of intrapreneurship. Intrapreneurship is thus an autonomous process.

Federal Mogul Sealing Systems (FMSS), an automotive component manufacturer within the Eastern Cape served as the basis for this study. A detailed literature review was conducted and a questionnaire was drawn up and distributed in an attempt to assess the three prevalent elements for the creation of innovation advantage through intrapreneurship as reviewed in the literature survey. The three elements were: individual intrapreneurial traits, organisational barriers and enablers of intrapreneurship and the influence of precipitating events on intrapreneurship. The research was conducted and recommendations were made based on the objectives of this study in relation to the organisation under study, FMSS.
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<td>Federal Mogul Corporation</td>
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<td>FMSS</td>
<td>Federal Mogul Sealing Systems South Africa (Pty) Ltd</td>
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<td>GATT</td>
<td>General agreement on tariffs and trade</td>
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<td>Gross Domestic Product</td>
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<td>GM</td>
<td>General Motors</td>
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<td>Import Export Complementation</td>
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<td>MIDP</td>
<td>Motor industry development programme</td>
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<td>MNC</td>
<td>Multi-national Corporation</td>
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<td>NMMU</td>
<td>Nelson Mandela Metropolitan University</td>
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<td>OE</td>
<td>Original equipment</td>
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<td>OEM</td>
<td>Original equipment manufacturers</td>
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<td>SA</td>
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<td>TQM</td>
<td>Total quality management</td>
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“Innovation is the specific instrument of entrepreneurship … the act that endows resources with a new capacity to create wealth.”

Peter Drucker (1905-2005)

1.1. Introduction

In order to create new capacities, it is necessary to lead change in “rapidly evolving industries” (Russell, 1999: 65). To manage change in the rapidly shifting global landscape of today is not sufficient, because the implication of merely managing change is that one is not keeping abreast of the pace of change, but rather, that one is catching up. Catching up therefore implies a level of uncompetitiveness. Many organisations perceive the creation of innovation as an important means of sustaining competitive advantage (Russell, 1999:65).

“Change is certain” (Heraclites cited in Leedy & Ormrod, 2001: 196). The rate of change is accelerating as Peters (2003:23) shows, where paradigm shifts initially occurred over thousands of years during the Bronze and Iron ages. This eventually increased to shifting paradigms every 100 years in 1000 AD to a paradigm shift occurring every ten years in 2000 (Peters, 2003:23).

Rapid paradigm shifts require revolutionary thinking – a brand new way of doing things. The world economy has become increasingly open and integrated. Globalisation has gone a long way to changing the approach of any organisation, for the creation of wealth. Rapid advancements in dynamic environments, in turn, require rapid innovative thinking. Changing environments continuously negate existing sources of competitive advantage, and in turn lead to the search for innovative sources of advantage (Russell, 1999:70). Amo and Kolvereid (2005:8) cite Chisholm (1987), McGinnis and Verney (1987) and Kuratko, Montagno and Hornsby (1990) who all maintain that within business organisations, innovation and the use of the creative energy of employees can be cultivated through intrapreneurship and corporate entrepreneurship.
Dynamic business environments and the inherent uncertainty of these environments mean that the pursuit of innovation advantage must be exploited through unconventional methods, particularly the utilisation of the autonomous actions of individuals (Russell, 1999:70).

“When the competition is innovating well…one must innovate or die” (Pinchot, 1985: 10).

1.2. The Main Problem Statement

This study aims to identify all the intrapreneurs amongst the 242 permanent employees at FMSS and to analyse the current organisational context and external business environment these intrapreneurs operate. The aim is to discover how these intrapreneurs can be stimulated to commence or increase intrapreneurial activities, and to determine how the organisational and external environment in which they operate can be made more conducive to autonomous intrapreneurship.

The main problem statement can therefore be represented as follows:

**The identification of the intrapreneurs at FMSS to assess the success of the current organisational contexts and environmental elements in stimulating autonomous intrapreneurship, for sustained organisational renewal.**

1.3. The Subproblems

The main problem is too large for effective resolution. The division of the main problem statement into smaller units will facilitate a comprehensive resolution of the main problem (Leedy & Ormrod, 2001: 56). These smaller units are called subproblems.

The subproblems that have been identified are:
• What is covered by the literature in terms of intrapreneurial characteristics, the best methodology for inducing autonomous behaviour and the organisational and environmental support mechanisms required to encourage this autonomy?
• What proportion of the employees at FMSS display intrapreneurial traits and how are these employees distributed throughout the organisation?
• What organisational support mechanisms for the induction of autonomous intrapreneurship, are in place?
• What external environmental elements are conducive to the induction of autonomous intrapreneurship?

1.4. The Research Objective

The objective of this study was to:

• Determine the percentage, composition and distribution of the intrapreneurs at FMSS.
• Determine the cultural and environmental barriers and enablers of intrapreneurship at FMSS.
• Determine methods for stimulating or increasing intrapreneurial activity at FMSS.
• Present the results and recommendations of this study to FMSS employees with suggested implementation plans.

1.5. Prior Research

In order to re-new itself, any organisation in today’s world must be flexible – “greater innovation has taken place in response to the challenges of a changing economy” (Kanter, 1990: 9). Some authors question whether the smaller innovative steps engendered by Total Quality Management (TQM), continuous improvement and sustainable competitive advantage are sufficient for the revolutionary changes demanded of organisations today (Kanter 1990: 10; Peters 2003: 25). These authors also question whether large corporations are agile enough to effect the changes needed to revolutionise through innovation.
Larger organisations quickly stagnate once reaching a certain size or level of success. This is often attributed to the need for improved perceived efficiencies, by the addition of processes, policies, hierarchical structures and more employees. These additions result in the decline or stagnation of intrapreneurial activities and innovation (Eesley & Longnecker, 2006: 19), and (Pinchot, 1985: 5).

The key to autonomous innovation and intrapreneurship appears to be size – small organisations as maintained by both Peters (2003: 36 – 38) and Kanter (1990: 10) who refer to the term “creative destruction”. This is the process of larger organisations imploding on themselves to create smaller, more adaptive organisations.

The practice of intrapreneurship could significantly improve the competitive advantage of large organisations and corporations by providing the agility and the result of increased innovation, would be better business performance similar to that of smaller businesses (Eesley & Longnecker, 2006: 19).

While literature continuously focuses on the American market, and to a lesser degree the Japanese and European markets, there is very little literature focusing specifically on the South African market. Du Preez (2005: iii) developed a model of corporate entrepreneurship to incorporate innovation and customer-centric focus as core strategic requirements for sustainable competitive advantage in the automotive components sector of the Eastern Cape, South Africa. This study focused on the organisational posture of corporate entrepreneurship.

South African companies face unique challenges from the rapidly changing global marketplace (Barnes, 2000a: 5). The history of the country, the diversity of cultures and paradigms of its peoples and the geographical challenges industries must overcome and harness as opportunities, are all considerations. This research has specifically focused on intrapreneurship within a South African organisation, with the individual as the unit of analysis.
1.6. **Definition of Key Concepts**

- **Invention**: the act of creating a new idea for a useful new product or service (Pinchot, 1985: 11). It is a thought process.

- **Innovation**: the process of incorporating an invention into a successful business venture (Pinchot, 1985: 11). It consists of changes in goods, services and processes that produces a larger value-added end-result for the consumer or the differentiation of the product to such an extent that it results in the creation of an entirely new market segment (Russell, 1999:68). It is also an act of creative destruction because the process renders old methods obsolete, thereby destroying them (Pinchot, 1985: 287).

- **Innovation advantage**: the search for or uses of innovative sources of advantage to sustain or grow competitive advantage (Russell, 1999:70).

- **Innovation age**: a natural successor of the information age, where one has to use information to do common things in uncommon ways (Pinchot, 1985: 10).

- **Entrepreneur**: Those persons who are responsible for initiating innovation successfully, within an independent business (Pinchot, 1985:ix).

- **Intrapreneur**: Those persons who are responsible for initiating innovation successfully within an organisation. The intrapreneur could be either the creator or an inventor, but always the person who converts ideas into a profitable reality (Pinchot, 1985: viii). The intrapreneur is always self-motivated to initiate innovations.

- **Corporate entrepreneur**: those persons who are responsible for responding to management imposed, assigned and planned innovation initiatives, aligned to the corporate strategies (Amo & Kolvereid, 2005: 9).
The corporate entrepreneur is driven by management directives to stimulate innovation.

- **Intrapreneurship**: autonomous implementation of creations in organisations, by “thinking, reasoning and acting that is opportunity obsessed, holistic in approach, and leadership balanced” (Timmons, J.A. & Spinelli, S., 2003: 47).

- **Entrepreneurial Orientation (EO)**: defined by Dess and Lumpkin (2005:147) refers to the strategic initiatives that organisations use to identify and launch corporate ventures. It reflects the frame of reference apparent in organisations’ systems, culture and environment.

- **Veridical Awareness** is used to describe the awareness of the strengths and weaknesses of all (organisational) stakeholders including self, and of the external environmental influences (Timmons & Spinelli, 2004:254).

- **Intracapital** is the corporate equivalent of individually owned capital, used to fund any new venture creation for the organisation. This could take the form of discretionary budgets or include additional resources such as a sponsor or exploratory time (Pinchot, 1985: 284-297).

### 1.7. Delimitation and Limitation of the Research

In order to understand the main problem and its subproblems and to reduce uncertainty, it was necessary to further demarcate the boundaries of the research intended (Leedy & Ormrod, 2001:60).

#### 1.7.1. Geographical Area

The manufacturing industry is the second largest business sector in the Eastern Cape in South Africa, with two of the three automotive assemblers in the Eastern Cape situated in the Nelson Mandela Metropole (ecproc.co.za: 2006).
This study was therefore limited to the Nelson Mandela Metropolitan area, in Port Elizabeth.

1.7.2. Industry

The automotive components manufacturing industry was first established in Port Elizabeth shortly after the establishment of the first assembly plant in 1924 (Barnes, 2000b: 403). The research has focused solely on the automotive components manufacturing industry in Port Elizabeth.

1.7.3. Organisation and Size

FMSS is one of the longest established automotive component manufacturers in Port Elizabeth, having been founded in 1959 (Whitehead, 2000:2). This manufacturer of automotive gaskets had a permanent staff complement of 242 as at September 2006 (Company Records, 2006).

1.7.4. The Unit of Analysis and Level within the Organisation

A unit of analysis, according to Hussey and Hussey (1997:66) is the unit under study and around which the research problem is based, data is collected and subsequently analysed. The unit of analysis in this study was the individual, specifically the employees at FMSS across all levels departments. The individuals which were excluded from this study are those who have not been permanently employed at FMSS for twelve consecutive months. All casual and temporary employees were excluded from this study.

1.7.5. Subjects to be Studied

This study of autonomous intrapreneurship has covered:

- The characteristics of the unit of analysis;
- The organisational context with respect to structure, culture and strategy;
- The influences of the external environment.
1.8. Significance of the Research

The importance of this proposed study could be viewed from three perspectives:

- Intrapreneurship’s effect on the Eastern Cape Automotive Industry;
- Intrapreneurship’s effect on FMSS the organisation;
- Intrapreneurship’s effect on the individuals employed by FMSS.

The competitiveness of a nation, and the prosperity of any nation, is dependant on the ultimate success and productivity of the businesses operating nationally because it is “firms, not nations that compete in international markets” (Porter, 1990:33).

Organisations will not last forever. This view is held by Peters (2003: 33), who cites Bennis and Breduman (2003) and Nordström and Ridderstråle (2003). These authors propose that successful organisations will increasingly only be created to offer a value-added service or product, then they will vanish, be destroyed or “make a quick exit” (Peters, 2003: 33). Intrapreneurship allows for decentralised decision-making at a fundamental level – the individual (Pinchot, 1985: 20). Each individual becomes the “organisation” and after creating a value-added service or product, ceases to exist (Peters, 2003: 33). Intrapreneurship through innovation encourages the re-generation of the corporation at the most basic level of the organisation, the individual, so that new products, services, methodologies and different market segments are created.

The intellectual capital in any organisation is thus its most important resource. It is clear that any product or service can be copied (Peters, 2003: 87). Benchmarking and best practices as well as continuous improvement has resulted in much of the same product (Peters, 2003:87). For any organisation to compete successfully in the current hyper-competitive global environment, where a company has to dramatically regenerate in order to differentiate itself
from its competitors, a paradigm shift within the company must begin to take place (Peters, 2003: 23).

Grulke and Silber (2000: 185) believe that learning is not attained through analysis, but through learning from the future, which they term “emergent properties”. These elements have been reduced to ten key focus areas, eight of these were pertinent to this study (Grulke & Silber, 2000: 187 - 207):

- The economy is driven by information and ideas;
- The focus is shifting to individual responsibility and decentralised control;
- Shared leadership is replacing hierarchical management styles;
- “Non-linear” behavioural traits are becoming accepted and desired practices;
- Uncertainty provides opportunities;
- Constant renewal and change through destruction is necessary for innovation advantage;
- Learning from the future, not from past experience is the key to benefiting from dynamic business environments;
- Establishing competitive advantage through innovation advantage, not through benchmarking.

The challenges facing South Africa as a low to middle-income country are as unique as the country itself. The task facing managers who must deal with these challenges and how they will deal with them are still unclear and there appears to be very little indication that businesses are developing plans to improve their ability to keep track of competitors and competitiveness. South African businesses are still in the infant stages of realising and experiencing the effects of complacency.

This researcher proposed that in identifying the intrapreneurs and stimulating increased intrapreneurial activity amongst the creative individuals at FMSS would result in paradigm shifts among the more conservative or digital thinkers in the company. Increased creative activity and questioning of the status quo will result in more people trying new processes or new ways of doing things,
thereby changing self-image and resulting in a continuously evolving company with employees who are proactive solutions providers. These correlates with Peters’ (2003:296) belief that change can occur in individuals not only as a result of exposure to different methodologies and ideas, but also as a result of being forced to change.

The significance of this research from a South African perspective could be generically applied to any automotive component manufacturer in South Africa. The benefits will not only serve to identify where FMSS could specifically become more competitive, globally and domestically, as a result of increased intrapreneurial activity, but would assist in other firms identifying possible areas to improve and generate an assessment of their own.

1.9. Research Design

The research design has provided the plan and structure for the research that follows. It has incorporated the procedures to be followed, the data collection, collation and analyses (Leedy, P. & Ormrod, J.; 2001: 91), and has incorporated the research instrument.

1.9.1. The Research Instrument

The observations arising from the research question must be measured with an instrument that will provide maximum value to solve the problem under investigation (Leedy et al, 2001: 98).

The research instrument used in this study was the survey questionnaire. This was used to obtain a better understanding of the current situation at FMSS – “identifying the characteristics of an observed phenomenon” (Leedy et al, 2001: 191), in this study, the premise of the intrapreneurial characteristics of individuals and the research problem.

Three existing research instruments incorporated into a single new research instrument were used for data collection.
The first instrument to be incorporated was based on Pinchot’s (1985: 31) test “Are you an intrapreneur?” and was adapted to identify the intrapreneurs in the sample.

The second instrument was an adaptation of Pinchot and Pellman’s (1999: 160), “The Entrepreneurial Evaluation Checklist” and was designed to measure the intrapreneurial characteristics displayed by the sample.

The third instrument was reliant on Pinchot and Pellman’s (1999: 107) “Innovation Climate Questionnaire“ and was adapted for this particular study.

The fourth section was a new section designed by the researcher to test the balance of the research questions. All four instruments were combined into one comprehensive instrument, for expediency.

The comprehensive instrument has tested for demographical data such as gender, age, qualification, employment duration, and current department in which the respondent works. This section consisted of dichotomous and multiple-choice questions.

1.10. Proposed Chapters

This research study consists of six chapters:

Chapter One will introduce the research topic and will serve to illustrate the need for the research topic. This chapter will also briefly outline the research methodology, approach to be used and describe the key concepts to be used.

Chapter Two will provide an analysis of the South African automotive components industry, the environment in which FMSS operates. This chapter will additionally provide an historical overview of FMSS and the organisations strategic fit and alignment with its operating environment.
Chapter Three will review in detail the major prior research undertaken with regard to this research topic. This literature review will also include major articles and books written regarding the topic. These will all serve to illustrate what has already been covered and will highlight a deficiency in the topic by answering a portion of the research problem and subproblems which this research will, to some extent, fulfil.

Chapter Four will describe the research methodology and research instrument in detail. This will incorporate data collection techniques.

Chapter Five will report the results of the research conducted and an in-depth analysis of the same. This is the chapter in which the research problem and identified sub-problems will be proved or disproved by means of the presentation and analysis of the results.

Chapter Six will summarise and conclude the research and emphasise the importance of the results obtained. Recommendations will be included in this final chapter, as will suggestions for further research to build on this current topic.

1.11. Conclusion

This chapter outlined the format and methods that the research has employed, with reference to the research problem and its subproblems. Key terms have been defined and a brief overview of the literature has been compiled, highlighting the need for research into the field of intrapreneurship. The significance of this study has been reviewed.

The next chapter will review the automotive components industry in South Africa and the Eastern Cape, with a specific view to highlighting the strategic fit and alignment of FMSS into this industry.
CHAPTER TWO
THE SOUTH AFRICAN AUTOMOTIVE COMPONENTS INDUSTRY AND
FMSS STRATEGIC FIT

2.1. Introduction

Increased trade liberalisation in South Africa has been a direct result of the fall
of apartheid and resultant increased exposure to new markets and opportunities

Globalisation refers to the easier facilitation of the exchange of goods, services,
ideas and information as a direct result of technological innovations such as the
Internet (Finnemore & van Rensburg, 2000: 70).

The South African economy, as a result of economic sanctions and isolation
was independent of international practices (Finnemore & van Rensburg, 2000:
72). The manufacturing sector which incorporated the automotive component
manufacturing sector, was inwardly focused, which led to stagnation of ideas
and inefficient processes (Finnemore & van Rensburg, 2000: 72).

Due to the increased impact of globalisation and the resultant liberalised trade
practices in the post-apartheid era, the South African automotive manufacturing
industry and its supporting automotive components manufacturing industry are
increasingly being exposed and incorporated into the international environment,
where market requirements are more competitive and discerning (Barnes,
domestic order-winning criteria would today only qualify as entry criteria into the
international environment.

It is in this competitive, challenging global environment that Federal Mogul
Sealing Systems (FMSS) operates. This section will indicate the strategic fit
and alignment of FMSS into this environment.
2.2. The Nature and Importance of the South African Automotive Components Industry

As it is businesses belonging to a nation that compete in a global environment, it is these businesses which become a measure of that nation’s competitiveness (Porter, 1990: 33). The South African political economy and its three elements, however, strongly impact on the success of the business (Barnes, 2000a: 401). Barnes (2000a: 401) cites Bowles & Edwards (1987) who maintain that the three elements are competition, command and change. These defining elements are manifested in the South African automotive industry by market liberalisation, the reintegration into the global operating environment and the stagnation of the domestic market, respectively (Barnes, 2000b: 9).

The South African automotive components industry is dependent on the Original Equipment Manufacturers (OEMs) for economic survival (Barnes, 2000a: 402). This is borne out by the automotive component manufacturing output for 1997, which indicates that 53 per cent of this output was supplied to domestic OEMs, 21 per cent to the domestic aftermarket and 26 per cent to export markets (Barnes, 2000a: 402).

The historical nature of this relationship will be examined in order to contextualise the current value chain repositioning which has resulted in these three elements of the South African automotive components industry. The contribution of this manufacturing sector to the South African economy will then be determined and, by inference, its importance.

2.2.1. The History of the South African Automotive Components Industry

Ford established the first assembly plant in Port Elizabeth in 1924, followed by General Motors (GM) in 1926 (Barnes, 2000a: 403). This led to the establishment of the automotive components supporting industry. Growth in this sector was further stimulated by two factors.
The first was that of government programmes, which was aimed at increasing the local content usage by OEMs in South Africa (Barnes, 2000a: 403). This led to an increased demand for local automotive components.

The second factor fuelling growth in the automotive component industry was the disinvestment of foreign companies, including Ford and GM, due to the imposition of economic sanctions. Buy-outs by domestic parties meant that South Africa became one of the few Third World countries having a localised automotive industry.

These two factors resulted in an inwardly focused domestic automotive industry, which forced local OEMs into utilising domestic automotive component manufacturers on two fronts (Barnes, 2000a 404):

- SA OEMs were afforded increased levels of protection, peaking at 115 per cent in 1995;
- SA OEMs had to meet legislated local content requirements by procuring from uncompetitive SA automotive component manufacturers, or face exposure to high excise rates.

It was due to these protective measures, and the closed, inwardly focused nature of the entire domestic automotive value chain, where lack of global competition meant that there was no stimulation for innovation. This resulted in the maintenance of an uncomfortable static balance, which was only altered by the eventual introduction of the Motor Industry Development Programme (MIDP) in 1995 (Barnes, 2000a: 404) and the reincorporation of SA into the global markets.

2.2.2. The Value Chain repositioning within of the South African Automotive Components Industry

The reintegration of SA into the global business environment after economic sanctions were lifted, led to radical changes. South Africa's inwardly focused domestic automotive market had been excluded from the global changes.
Fundamental shifts in the global automotive industry value chain, specifically the relationship of OEMs and their component suppliers, meant that manufacturers who had previously produced according to OEM specifications, were now offering design solutions, using the expertise of the component manufacturers (Meyn, 2004:8). The demand for complex design solutions forced South African manufacturers to restructure, in order to become internationally competitive. This necessitated a complete reversal from that of production of a varied range of component offerings, to that of a specialised core range of product (Meyn, 2004:8), in order to benefit from economies of scale and to facilitate the development of core competencies. Figure 2.1 depicts the value-chain positions within the automotive components industry.

**Figure 2.1: An outline of the South African automotive components industry and the market it supplies.**

![Diagram of automotive components industry value chain](source: Barnes, J. 2000b: 15)
The South African automotive components industry has now been placed under pressure to increase operational competitiveness by conformance to global standards, and the requirement that South African automotive component manufacturers develop equitable leverage in their relationships with their parent MNCs. This in turn would enable the OEMs to facilitate global sourcing relationships, which would serve the global community and not only the domestic market (Barnes, 2000a: 406).

2.2.3. The Economical Contribution of the South African Automotive Industry

The South African automotive manufacturing industry is the 19th largest automotive supplier globally, with a 0.7 per cent share of global vehicle production (Meyn, 2004: 7). It is also the most significant automotive manufacturer in Africa, contributing approximately 80 per cent of the production output (Haynes, 2006: 1). It is the largest manufacturing sector in SA and the third largest economic sector (Meyn, 2004: 7). The automotive industry is located in three major areas in SA: Gauteng, Durban and the Eastern Cape. This manufacturing sector is becoming an increasingly important contributor to the country’s Gross Domestic Product (GDP), with 6.3 per cent in 2002. This increased to 7.2 per cent in 2004 (SA Automotive Yearbook 2006).

Meyn cites some additional data as follows (2004:7-12):

- Contribution to exports has doubled to 9.75 per cent for the period 1997-2001;
- The automotive sector exported vehicles to the value of R40 billion in 2002;
- The automotive components sector was responsible for over 60 per cent of the exports in the automotive industry for 2002 and exports from this industry grew at 100 per cent annually for the period 1995 to 2001;
- The automotive industry manufacturing value added outperformed the overall manufacturing value added by 300 per cent and increased by 52.1 per cent overall from 1993 to 2001;
- Labour productivity and increased international competitiveness due to automation meant that this sector’s value added grew by more than 50
per cent, compared with a 19 per cent increase of the manufacturing sector overall, for the period 1993 to 2001;

- Increased labour productivity and automation led to a decrease in employment, with a decline from 115,000 to 87,700 for the period 1997 to 2003.

The success of the automotive manufacturing industry (with the exception of declining employment levels) since 1995 is clearly evident in the statistical data, which illustrates the importance of this manufacturing sector to the SA economy.

2.3. The Drivers of the South African Automotive Components Industry

The three core drivers of the SA automotive component manufacturers operating environment are (Barnes, 2000b: 9):

- Competition: Market Liberalisation;
- Command: Reintegration into the Global Operating Environment;
- Change: Domestic Market Stagnation.

Barnes (2000b: 37) maintains that global competitiveness is essential to the future survival of the automotive components industry in SA. It is thus necessary to examine these drivers to ascertain the extent of the barriers and enablers to competitiveness.

2.3.1. Competition: Market Liberalisation

The introduction of the MIDP in SA in 1995 has resulted in the reduction of trade barriers, with the automotive components industry operating in an open economy (Barnes, 2000b: 9). This has exerted intense competitive pressures on automotive component manufacturers, because domestic OEMs are no longer forced to utilise domestic automotive component manufacturers, owing to an excess of duty credits obtained under the auspices of the Import Export Complementation (IEC) element of the MIDP (Barnes, 2000b: 9). This means
that there are no false trade barriers to offer some level of domestic protection to these automotive component manufacturers (Barnes, 2000b: 9).

The MIDP was introduced to increase the competitiveness of the domestic automotive industry by increasing that industry’s global connectedness while still satisfying the requirements of the General Agreement on Tariffs and Trade (GATT), which excludes quantitative and local content restrictions (Meyn, 2004:10).

The MIDP still has the following objectives (Meyn, 2004: 10):

- To improve the global competitiveness of the automotive industry;
- To promote economic growth through increased exporting;
- To grow or maintain current employment levels;
- To improve the trade balance thorough increased exporting;
- To make vehicles more affordable in the domestic market.

The speed of the exposure to both global markets and competition has created intense economic difficulties for automotive component manufacturers (Barnes, 2000b: 9). These difficulties were reflected in the declines in employment rates and zero growth in output levels of automotive component firms, for the period 1994 to 1998.

Despite these economic difficulties, Barnes (2000b: 10) believes that automotive component manufacturers have still managed to increase their competitiveness by the introduction of “lean production” techniques. This is still not sufficient, however to close the gap on international competitors who maintain even higher levels of competitiveness; SA automotive component manufacturers are finding that they need to match the competitiveness levels of their international benchmarks, not merely improve on their current level.

The MIDP in itself does not add skills and knowledge. In addition, with the MIDP about to end in 2012, Meyn (2004:16) maintains that the challenge is to ensure the maintenance of South African automotive component manufacturers’ position in the value chain.
2.3.2. Command: Reintegration into the Global Operating Environment

The domestic automotive component manufacturers have long been dependant on the OEMs, as a result of global economic isolation. This command structure is further aggravated by the reincorporation of the domestic OEMs into their MNCs. Five of the seven OEMs in SA have had ownership changes since 1990. Table 2.1 illustrates the reintegration of the SA OEMs into their global families.

Table 2.1: The Changing Ownership Structure of the SA based OEMs

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Toyota</td>
<td>100% local (JSE)</td>
<td>100% local (JSE)</td>
<td>100% local (JSE)</td>
<td>South African to Joint Venture</td>
</tr>
<tr>
<td>Volkswagen</td>
<td>VAG 100%</td>
<td>VAG 100%</td>
<td>VAG 100%</td>
<td>MNC - No change</td>
</tr>
<tr>
<td>BMW</td>
<td>BMW AG 100%</td>
<td>BMW AG 100%</td>
<td>BMW AG 100%</td>
<td>MNC - No change</td>
</tr>
<tr>
<td>Daimler-Chrysler</td>
<td>50% local 50%</td>
<td>100% DaimlerChrysler</td>
<td>100% DaimlerChrysler</td>
<td>Joint Venture to MNC</td>
</tr>
<tr>
<td>Samcor (Ford)</td>
<td>100% local (Anglo American)</td>
<td>45% Anglo American 45% Ford 10% Employees Trust</td>
<td>90% Ford 10% Employees Trust</td>
<td>South African to MNC</td>
</tr>
<tr>
<td>Automakers</td>
<td>87% local 4.3% Nissan Diesel 8.7% Misui &amp; Co</td>
<td>38% local (Sankorp) 50% Nissan 4.3% Nissan Diesel 8.7% Misui &amp; Co</td>
<td>87% Nissan Diesel 4.3% Nissan Diesel 8.7% Misui &amp; Co</td>
<td>Primarily South African to MNC</td>
</tr>
<tr>
<td>Delta</td>
<td>100% local (Managers)</td>
<td>51% local (Managers) 49% General Motors</td>
<td>51% local (Managers) 49% General Motors</td>
<td>South African to Joint Venture (GM completed its buy back of Delta in 2004)</td>
</tr>
</tbody>
</table>

Source: Barnes, 2000b: 12 and Automotive Forecast World 2005
The implications of these changes in ownership in the OEMs for domestic automotive component manufacturers is that whilst the facilitation in exports is promoted through new global supply routes, the component manufacturers are also forced to comply with international performance standards. If these international standards are not met, the business is simply transferred by the OEMs to foreign component manufacturers (Barnes, 2000b: 12).

The reintegration into global markets implies that there are no longer differing standards between the local and international markets. This difference means that local OEMs will accept only international standards from SA component manufacturers (Barnes, 2000b: 13). These performance standards encompass:

- Competitive pricing;
- International quality standards compliance;
- On-time delivery;
- Flexibility;
- New product development capability.

It is thus connectivity, as well as competitiveness (Barnes, 2000a: 404) that drive the operating environment of the SA automotive component manufacturers.

2.3.3. Change: Domestic Market Stagnation between 1996 and 2000

The domestic automotive market has shown no growth between 1996 and 2000 (Barnes, 2000b: 13). While productivity has increased, the value of the total output for the automotive industry has remained static at R30 billion for the period 1996 to 2000 (Barnes, 2000b: 13). Lamprecht (2006:80) attributes this flat growth rate to market instabilities, particularly as a result of the emerging market crisis in 1997, and the resultant high domestic interest rates. The success of the automotive industry has been largely due to the export incentives. The domestic market was unchanged and there was no further market growth after the 20 per cent growth in 1995 (Barnes, 2000b: 13), until 2004 where the domestic automotive market achieved record highs, highlighting
the previous stagnation of the domestic automotive market (Lamprecht, 2006:81).

The pressures faced by automotive component manufacturers from OEMs are also thus due to the OEMs seeking to improve market share domestically. These OEMs compete directly with each of the seven domestic OEMs as well as direct importers. Improved market share can only be done through improved supply chain efficiencies (Barnes, 2000b: 14).

2.4. The Automotive industry in the Eastern Cape and the Nelson Mandela Metropole

The Eastern Cape hosts three automotive assemblers: DaimlerChrysler SA, Volkswagen SA and GMSA. The province has an active manufacturing sector that contributes 25.8 per cent of the total value of output of the Eastern Cape. It is the second largest sector in the province and contributes 18 per cent of the employment for the productive sectors of the province (ecprov.gov.za, 2006).

2.5. Federal Mogul Sealing Systems in the Nelson Mandela Metropole

2.5.1. An Overview of Federal Mogul Sealing Systems

FMSS was established as Cork Manufacturers (Pty) Ltd in 1959 in Port Elizabeth and manufacturing commenced with cork automotive gaskets and cork heels for ladies shoes (Whitehead, 2000: 2).

FMSS was incorporated into the FM stable during the acquisition of T&N plc in 1998 and the company is now a wholly owned subsidiary of the Federal Mogul Corporation of America (FM) (Whitehead, 2000: 2).

The corporation consists of four manufacturing entities and one distribution channel to the aftermarket, the Local Distribution Centre (LDC). The LDCs are based in strategic locations, suited to the most effective distribution of all
products manufactured in the different product groups. The LDC in Johannesburg serves South Africa’s market. The four manufacturing entities are:

- Federal Mogul Friction;
- Federal Mogul Hard Parts;
- Federal Mogul Vehicle Safety and Performance Products;

FMSS belongs to the Sealing Systems manufacturing group and serves three markets: the domestic aftermarket, the local OEM market and the International market.

2.5.2. Federal Mogul Sealing Systems’ Strategic Initiatives: 1980 to 2001

The strategic focus of FMSS in 1980’s and early 1990’s was to grow local market share (Whitehead, 2000:3). This correlates with the national environment at the time, prior to the lifting of economic sanctions and the reintegration into the global environment. The biggest market sector served by FMSS was the independent aftermarket, peaking at 52 per cent of the market in 1999 (Whitehead, 2000: 3). Domestic market stagnation from the mid 1990’s led the company to seek growth in global markets.

The strategic pursuit of international business included the alignment with FMs global strategic initiatives, which was to develop regional “Centres of Excellence” globally. FMSS grew their business further by promoting the site as a centre of excellence for softs and cork, typically labour intensive products. This meant that all labour intensive gasket technology was transferred from the high labour cost European sealing systems plants, to that of the lower labour cost South African plant (Whitehead, 2000: 4). Table 2.2 indicates the success of this strategy:
Table 2.2: FMSS Channel Analysis Growth from 1999 to 2001

<table>
<thead>
<tr>
<th>Channel</th>
<th>1999 Market Share (%)</th>
<th>2001 Market Share (%)</th>
<th>1999 Turnover (R millions)</th>
<th>2001 Turnover (R millions)</th>
<th>1999 Proportion of Turnover (%)</th>
<th>2000 Proportion of Turnover (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local After-market</td>
<td>52</td>
<td>52</td>
<td>74</td>
<td>80</td>
<td>75</td>
<td>49</td>
</tr>
<tr>
<td>OEM Local Market</td>
<td>5</td>
<td>6</td>
<td>12</td>
<td>16</td>
<td>12</td>
<td>10</td>
</tr>
<tr>
<td>Global Markets</td>
<td>0</td>
<td>1</td>
<td>12</td>
<td>66</td>
<td>13</td>
<td>41</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td><strong>99</strong></td>
<td><strong>162</strong></td>
<td><strong>100</strong></td>
<td><strong>100</strong></td>
</tr>
<tr>
<td>No of Employees</td>
<td></td>
<td></td>
<td>210</td>
<td>260</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Whitehead, 2000: 3 and 5

The growth for FMSS in the export sector clearly mirrors the domestic market environment as outlined earlier, with an increase in the global market sector from 13 per cent of turnover to 41 per cent.

2.6. Conclusion

Clearly the automotive sector in SA generally, is presented with unique challenges due to the increased impact of globalisation and the resultant open markets in the post-apartheid era. The South African automotive manufacturing industry and its supporting automotive components manufacturing industry are increasingly being exposed and incorporated into the international environment where the dynamism of these markets demands an openness to new, different concepts.

Chapter three will outline the role of the intrapreneur and explore the concept of intrapreneurship with a view to achieving autonomous innovation advantage.
CHAPTER THREE
INTRAPRENEURSHIP

“Every organisation – not just business- needs one core competence: innovation.”

Peter Drucker (1905-2005)

3.1. Introduction

New, different concepts require creativity as the first step in the innovation process (Pinchot & Pellman, 1999:1). It requires passion, motivation and action to bringing an idea into fruition (Pinchot & Pellman, 1999:2) and these are qualities which are found in the intrapreneurs within organisations, who turn ideas into realities.

Pinchot and Pellman (1999:1) maintain that sources of competitive advantage are not permanent. The volatility of the environments in which organisations operate and compete, means that flexibility and effective responses to these changing environments are essential for the survival of organisations (Gomez, Balkin & Cardy, 1999:4). This is due to the constant rate of change; human resources are thus the source of any effective response – thereby creating competitive advantages for the organisation because of the uniqueness of the employees at a specific organisation (Gomez et al, 1999:4). Low cost strategies, brand strengths, technological dominance and new manufacturing techniques are all temporary sources of competitive advantage, which is rapidly lost should there be no or limited innovation to sustain them (Pinchot & Pellman, 1999:1). The innovation process therefore “requires employees to behave like entrepreneurs: (Pinchot & Pellman, 1999:1).

Intrapreneurial behaviour occurs as a result of the interaction between individual characteristics and organisational characteristics, which encourage creativity, innovation and empowerment by commitment from management and leaders who directly or indirectly sustain these organisational characteristics (Eesley & Longnecker, 2006:19; Antoncic, 2001:231). The interaction is given impetus by
Chapter three will focus on the three elements for the creation of innovation advantage through autonomous intrapreneurs. The individualistic intrapreneurial behavioural traits will be reviewed. The second element to be reviewed will focus on organisational barriers and enablers for innovation advantage creation through intrapreneurship. The third element will review the nature of the external precipitating events and its influence on the intrapreneurial process.

3.2. The Key Elements of Entrepreneurship, Corporate Entrepreneurship and Intrapreneurship

The intrapreneurial concept has been derived from the entrepreneurial definition (Pinchot, 1985: 2). Furthermore, the concept of intrapreneurship can be differentiated from that of corporate entrepreneurship, which is driven by organisational strategy.

3.2.1. Entrepreneurship

The classical definition of entrepreneurship encompasses a methodology of creating or identifying opportunities, which results in the creation of value-added products, processes or services (Timmons & Spinelli, 2003:47). The end result benefits not only the initiators of the entrepreneurial activities, but all stakeholders. The evolution of entrepreneurship has grown to encompass independent companies as well as corporate organisations (Timmons & Spinelli, 2003:47; Ireland, Hitt, Camp & Sexton, 2001:49).

Pinchot (1985: xii) popularised the word “intrapreneur” from the term “intracorporate entrepreneur”, which refers to those entrepreneurs operating within an organisational context, as opposed to the independent entrepreneur.
3.2.2. Corporate Entrepreneurship

Kanter (1990:180) refers to the corporate entrepreneur as those entrepreneurs who operate within an organisational environment where the innovation process is stimulated through “official emphasis” or strategic initiatives. The key difference of intrapreneurship is that of the formalised top-down directive where management and employees are required to contribute towards organisational success by venture creation (Amo & Kolvereid, 2005:9). Dess and Lumpkin (2005:147) define corporate entrepreneurship as the regeneration of organisations using strategy.

**Figure 3.1: An Illustration of Corporate Entrepreneurship and Intrapreneurship.**

Source: Amo & Kolvereid, 2005:11

3.2.3. Intrapreneurship

Intrapreneurs operate within an organisational environment where innovation behaviour is initiated independently of any corporate strategies (Amo & Kolvereid, 2005:10; Pinchot, 1985: xvii). Intrapreneurs must thus persuade or
seek permission from management in pursuit of their vision (Pinchot, 1985: xvii). Amo and Kolvereid (2005:10) cite Carrier (1996), who maintains that these independently initiated activities, could be further aggravated by resistant managers or disempowering management practices.

The process of intrapreneurship is a bottom-up approach, where the intrapreneur obtains resources independently. The process is multifaceted, with numerous simultaneous forces acting in unison to achieve the ultimate goal – the implementation of an innovative idea (Hornsby et al, 1993:29). Amo and Kolvereid (2005:10) further state that employees with intrapreneurial personality traits display innovation behaviour.

Both corporate entrepreneurship and intrapreneurship require the stimulation of innovative behavioural traits by harnessing the creative energies of employees as the end result (Amo & Kolvereid, 2005:8). The two concepts are related but the manner in which both terms are defined is inconsistent (Amo & Kolvereid, 2005:9).

Corporate entrepreneurship for the purposes of this study will be regarded as a reactive response to corporate stimuli, while intrapreneurship will be regarded as an autonomous initiative within an organisational context and will be regarded as being closely related to independent entrepreneurship as advocated by Pinchot (1985:65).

3.3. When Intrapreneuring is more beneficial than Entrepreneuring

Pinchot (1985:87) states that there are specific situations in which intrapreneuring would be more beneficial than that of independent entrepreneuring:

- When the vision is inherently intrapreneurial and offers a method of building onto or improving organisational processes;
- When the desire to retain friendships or organisational security is greater that the desire to cultivate great wealth;
• When access to intracapital is easier than obtaining funding from external sources;
• When the intrapreneur wants to practice new venture creation internally, before proceeding independently;
• When the utilisation of organisational resources is necessary for the success of the intraprise;
• When access to organisational proprietary technology is essential for the maintenance of competitive advantage of the intraprise.

3.4. The Advantages of Intrapreneurship over Corporate Entrepreneurship

The fact that intrapreneurship is an autonomous process, arising from independent initiatives, Teltumbde (2006: 129) refers to intrapreneurs as revolutionaries, who question and challenge the organisational culture. It is due to this constant drive for innovation and for transformation that may result in potential organisational friction (Teltumbde, 2006: 129) between intrapreneurs and organisations.

In terms of their culture, corporations are undemocratic and determined to achieve goals and realise strategic initiatives at all costs (Teltumbde, 2006: 129). Top-down controls and centralised decision-making, prevalent in most organisations, is the antithesis of intrapreneurship (Teltumbde, 2006: 129).

Amo and Kolvereid (2005: 9) who cite Kanter (1984), maintain that it is the organisational environment that determines the individual’s contribution towards innovation, which stimulates individuals by empowering them. Furthermore, it is these individuals’ perception of the degree to which the organisation encourages innovation behaviour, which determines the degree of inputs from these corporate entrepreneurs (Amo & Kolvereid, 2005: 10). However, corporate entrepreneurship initiatives are only receptive to innovative responses if those responses from corporate entrepreneurs are aligned to organisational strategy (Amo & Kolvereid, 2005: 11).
Peters (2003: 296) maintains that the launch of strategic initiatives or training programs to encourage or induce corporate entrepreneurship cannot overcome the natural behavioural tendencies of individuals, such as fear of failure. Additionally, corporate initiated programs have difficulty in attracting buy-in from individuals (Hanson, 2005: 95).

The characteristics of intrapreneurs are very specific and differ from that of business managers, who should display some entrepreneurial traits during the course of their careers (Willax, 2004a: 13A).

3.5. **Individual Characteristics that Foster Intrapreneurship**

As the individual is the unit of analysis in this study, the influence of an individual’s personality on the success of the organisational intrapreneurial effort will be examined. Hornsby et al (1993:33) states that the effort to identify new or current employees with intrapreneurial characteristics would be worthwhile in support of intrapreneurial opportunity identification within the organisation. The challenge, however is for corporate Chief Executive Officers (CEO) to seek, locate and free these “latent innovators before they are subsumed by the system” or leave for more challenging, supportive organisational environments” (Willax, 2004a: 13A).

Pinchot (1985:32) maintains that the intrapreneur bridges the divide between that of the inventors and that of the growth business managers, within the business process.

Previous research has focused on the differences between intrapreneurs and successful business managers (Hornsby et al, 1993:33). Hornsby et al (1993:33) cite Brockhaus and Horwitz (1986) who concluded that there were few psychological traits found to distinguish that of intrapreneurs and business managers. Successful business managers do not display the unique characteristics needed for the introduction and maintenance of innovative initiatives (Kanter, 1984:314; Willax, 2004:13A). Some distinct characteristics were consistently found amongst intrapreneurs (Hornsby et al, 1993:33;
Pinchot, 1985:39; Timmons & Spinelli, 2004:251; Willax, 2004:13A; Yeung, 2005: 63) as shown in Figure 3.2:

- Internal locus of control;
- Need for autonomy;
- Drive for achievement;
- Determination and commitment;
- Risk tolerant.

**Figure 3.2 : Core and desirable entrepreneurial attributes**

The Non-entrepreneurial Attributes

Source: Timmons & Spinelli, 2004: 251
3.5.1. **Internal Locus of Control**

Locus of control refers to an individual's perception of the locus of events as determined internally by his/her own behaviour in relation to external events (North Central Regional Educational Laboratory [NCREL], 2006). This means that the individual’s thoughts control his/her own actions and that when this superior function of thinking is realised, it can positively affect the individual’s beliefs, motivation and performance.

The intrapreneur is a visionary, with the fundamental ability to imagine a new business opportunity, foresee barriers and enablers of this vision and the ability to plan accordingly (Pinchot, 1985:37). It is the ability to visualise the route from conceptualisation to actualisation that characterises the intrapreneur.

Fundamental to the intrapreneur is the combination of both vision and action (Pinchot, 1985:40). Timmons and Spinelli (2004:251) concur with this view by stating that the entrepreneur is simultaneously a student, teacher, visionary, and worker. Pinchot (1985: 43) stated that most occupations require a high prevalence of either vision or action as indicated in Figure 3.3:

**Figure 3.3: Occupations indicating the predominance of vision or action**

![The Intrapreneurial Grid](source.png)

Source: Pinchot, G. 1985:44
Intrapreneurs, through necessity, must have a high rating of both vision and action. This is due to the intuitive feeling the intrapreneur will have for the new venture, which can only become a reality through the intrapreneur's intervention and nurturing (Pinchot, 1985: 43).

Intrapreneurs are nurturing not only of their new venture creations, but also of their relationships. They are able to influence and support without formalised power and acknowledge the fact that it is not possible to build a successful venture without additional resources in the form of high performing teams (Timmons & Spinelli, 2004: 252; Willax, 2004b: 13A). Part of this acknowledgement is the sharing of accountability, rewards and praise. This is perceived to be an essential trait for intrapreneurial success (Timmons & Spinelli, 2004: 253).

3.5.2. Need for Autonomy

Intrapreneurs must actively seek the role they are to fulfil (Timmons & Spinelli, 2004:254). This is echoed by Willax (2004b: 13A) who believes that intrapreneurs need to feel that the role or position they are fulfilling is one of choice and not one that has been assigned within the organisation. This is an important differentiation from that of corporate entrepreneurs, as outlined previously.

New ideas, innovations, processes and ventures are all, by nature, unknowns. Any new elements will always yield uncertainty in the course of events and even in the end-result (Kanter, 1984:203). The need for autonomy in intrapreneurs is further exacerbated by this highly uncertain environment, where the requirement for rapid responses, coupled with flexibility demands a high degree of independence from the main organisational business processes (Kanter, 1984: 213; Timmons & Spinelli, 2004:254).

Organisational business processes are perceived to be slow and bureaucratic and counter productive to the innovation process (Kanter, 1984:213; Pinchot, 1985: 209). The intrapreneur's versatility in obtaining resources is thus further encouraged (Pinchot, 1985:303; Willax, 2004b: 13A).
As Pinchot (1985:303) states:

“In almost every corporation, there exists large numbers of hard-boiled characters who no longer believe the platitudes that emanate from corporate staff. They know the system backwards and forwards and know how to acquire what they need to get the job done, regardless of what the official system dictates”.

Their colleagues view the intrapreneur as nonconformist, unconstrained and unconventional (Kanter, 1984:212; Willax, 2004b: 13A). These traits demand a high degree of autonomy as an input into the creative process.

3.5.3. Drive for achievement

The intrapreneur is driven by a personal need for accomplishment and achievement that is combined with a vision of the goal (Pinchot, 1985:66). Pinchot (1985:72) and Timmons and Spinelli (2004:254) maintain that this internal drive is fostered by the desire to compete and measure against self-imposed standards and the need to achieve what has not previously been accomplished.

Both Pinchot (1985:66) and Timmons and Spinelli (2004:254) cite the research of David McClelland (1965) who stated that it is not the idea of monetary compensation that inspires the intrapreneur into action. It is the prospect of accomplishing a goal and using the monetary compensation as a measure of the success of the endeavour. This is termed “achievement motivation in action” (Timmons & Spinelli, 2004:254). Kanter (1984:252) believes that ego-oriented sources of motivation include financial support for further innovation projects and the recognition and support for performing new creative ventures.

Kanter (1984:252) however, believes that monetary compensation does eventually become a factor, if only to retain these intrapreneurs. Pinchot (1985: xvii) disagrees with this viewpoint, having established through interviews with new intrapreneurs their true reasons for resigning from organisations. The primary factor for the mass exodus of intrapreneurs from organisational
environments is directly attributable to the frustrations felt whilst endeavouring to innovate.

The need for status and power in intrapreneurs is low, with no preconceived standards regarding the lowliness of work (Pinchot, 1985:42; Timmons & Spinelli, 2004:254). The intrapreneur will perform any activity required to accomplish the task / goal.

The drive for achievement in intrapreneurs is consistent with their high internal locus of control, where the intrapreneur believes that they can personally affect the end-result (Timmons & Spinelli, 2004:255). Coupled with high standards of integrity and reliability, it is essential that intrapreneurs develop “veridical awareness”. This term is used to describe the awareness of the strengths and weaknesses of all (organisational) stakeholders including self, and of the external environmental influences (Timmons & Spinelli, 2004:254).

Intrapreneurs’ highly competitive and achievement motivated natures yield a general difficulty in management roles – the high personal standards set could result in employees failing to meet those standards (Pinchot, 1985:73). This failure typically results in the intrapreneur becoming critical and demanding. Yeung (2005:63) concurs, stating that employees “often view them as arrogant or stubborn”.

3.5.4. Determination and commitment

Determination and commitment are, according to Timmons and Spinelli (2004:251), the most important characteristics of the intrapreneur. It is this trait that will help overcome barriers and also compensate for other weaknesses.

Timmons and Spinelli (2004:250) list five attitudes or behaviours attributable to this intrapreneurial characteristic:

- Intensely competitive in achieving goals
Achievement-motivated people, intrapreneurs, are very competitive but the focus is on internalised standards, not external competitors. Achieving their own self-determined goals is thus more important to the intrapreneur, than measuring up against others (Pinchot, 1985: 72).

This is important when contextualising Kanter’s (1984:77) comments that competition was irrelevant to the success of task completion, but that “intrinsic motivation” was a key factor. In fact, Kanter (1984:79) maintains that externalised competition, where corporate entrepreneurs compete against each other, may “drive out innovation”.

- Persistent in problem-solving

Problem resolution persistence is a distinguishing characteristic of intrapreneurs (Sontheimer cited in Timmons & Spinelli, 2004:250). The problem-solving techniques, as maintained by Pinchot (1985:56) are of resolution within or outside of organisational systems. The intrapreneur will remain in the organisation whereas the traditional entrepreneur would leave formal structures to start afresh, independently.

- Tenacious and decisive, able to recommit/commit quickly

Kanter (1984:181) believes that “sheer determination” is the best method of counteracting organisational bureaucracies. Combined with this tenacity, is the commitment demonstrated to overcome obstacles and the ability to recognise when a problem is unsolvable. This veridical awareness allows the intrapreneur to quickly identify their limitations and to recommit to other feasible ventures (Timmons & Spinelli, 2004:251). Pinchot (1985:45) states that one of the reasons why intrapreneuring is more successful compared with traditional product development processes is because the latter are too bureaucratic to foster dedication.

- Willing to undertake personal sacrifice
The fact that the intrapreneur regards a new venture as a high priority, the time spent on the project is immense, leading to personal sacrifice. This could take the form of pay-cuts or lifestyle and familial sacrifices (Timmons & Spinelli, 2004:251). Kanter (1984:285) states that the costs of accomplishments are weight-gain, divorce or family strife. Pinchot (1985:45) concurs with this viewpoint by maintaining that the divorce rate is higher among intrapreneurs than middle managers. This is because no personal sacrifice is too great to meet the impossibly high self-expectations of intrapreneurs.

- Immersed

Concerned intrapreneurs do exist, but when encountering a conflict of interest, the priority will be to complete the task at hand, rather than on fulfilling people’s needs (Pinchot, 1985:47). The all-consuming immersion in the task is an obsessive drive to capitalise on an opportunity (Timmons & Spinelli, 2004:253).

3.5.5. Risk tolerant

The traditional entrepreneurial career is closely associated with great uncertainty regarding the future and being liberated to fail is an important element of this career (Kanter, 1984:314). Willax (2004b: 13A) states that because of the disruptive and unstable nature of the intrapreneuring process, intrapreneurs must be encouraged to experiment and take risks, without fear of reprisals. Failure must thus be seen to be part of the normal process of innovation.

Intrapreneurs risk reputation and as a result they are incorrectly believed to be high-risk takers. Intrapreneurs seek calculated, moderate risks but do everything possible to reduce the risk (Pinchot, 1985:67; Timmons & Spinelli, 2004:253). Some of the methods in which this can be accomplished is by utilising any competitive advantage available from the organisation such as a uniquely patented technology or anticipating obstacles and the use of a feedback mechanism to overcome these obstacles (Pinchot, 1985:68).
3.6. Organisational Barriers to the Intrapreneurship Paradigm

Autonomous intrapreneurship demands organisational systems that are based on viewing the problems from the bottom up, as opposed to corporate entrepreneurship which requires the problems to be viewed from the top down (Pinchot, 1985:196).

Russell (1999: 65) echoes this concept and maintains that the organisations’ posture towards intrapreneurship is important because it will determine and influence management’s inclination to facilitate entrepreneurial efforts, by providing resources and organisational intangibles, such as structure and culture. Dess and Lumpkin (2005:147) refer to this organisational posture as entrepreneurial orientation (EO).

However, intrapreneurial efforts are not directly controlled by managers, but arise out of the innovation actions of autonomous individuals (Russell, 1999:71). Russell (1999:71) further states that strategic managers who wish to increase competitive advantage thorough innovation must create a liberated environment to inspire intrapreneurs to generate ideas independently, rather than directly manage the idea generation. Teltumbde (2006:130) proved that the intrapreneurship paradigm could be established in an environment devoid of authority.

The absence of a free environment can directly influence the effectiveness of the intrapreneur (Pinchot, 1985:197). Eesley and Longnecker (2006:19) conducted research into the barriers to intrapreneurship and found the top factors to be as follows:

- The punishment of risk-taking and the mistakes resulting from innovation causes a gradual decline in intrapreneurship that will eventually disappear from the organisation;
- The failure of organisations to heed individual recommendations for improvements and to follow-up on ideas discourages further input;
- The failure to cultivate an environment that encourages improved performance through the promotion and sanctioning of risk-taking,
empowerment and improvement actions reduces the likelihood of autonomous intrapreneurship;

- Unhealthy organisational politics, internal goal misalignment and uncooperative organisational members all fail to create the ideal climate for idea generation and new venture creation;
- The organisation that is characterised by structured hierarchies and poor communication that prevents the flow of information leads to a decline and stagnation in intrapreneuring;
- The failure to encourage independent thinking and to provide the opportunity for this thinking, which results in very little intrapreneuring;
- Unclear organisational vision, mission, goals and priorities leads to intrapreneuring talent not being channelled towards the creation of a competitive advantage;
- Lack of real management support in risk-taking and improvement initiatives;
- No rewards for any risk-taking activity or improvements;
- Lack of discretionary time and resources.

These barriers are clearly cultural constraints (Eesley & Longnecker, 2006: 20).

3.7. Organisational Influences on Intrapreneurship

Organisations can only provide the mechanism to allow intrapreneurs to notice opportunities for new venture creation and thereby stimulate innovative behaviour (Russell, 1999: 70). The onus is still on the individual to avail himself of this opportunity, and in this way, embark on the intrapreneurial process. The “freedom factors” which Pinchot (1985:197) lists, are dependent on the organisational environment to provide the stimulation for autonomous intrapreneurial behaviour. The underlying elements, through which these freedom factors can be facilitated, from an organisational context are culture, structures, resources and strategy (Russell, 1999:70).
3.7.1. The Freedom Factors

Pinchot (1985: 197) refers to the “freedom factors” which list certain determinants for the successful outcome of intrapreneuring:

- **Self-selection** where intrapreneurs appoint themselves to their roles, with organisational support for this self-appointment. The advocating of organisational bottom-down appointments (corporate entrepreneurship) is not recommended;
- **No hand-offs** where the innovation process is switched from a fully committed intrapreneur to someone else, who may not attain the same level of buy-in, passion and belief in the idea, the original intrapreneur might display;
- **The doer decides** determines the degree to which intrapreneurs must request permission or offer explanations;
- **Corporate slack** refers to the evolution of flexible access to time and organisational resources for new business venturing;
- **Ending the home-run philosophy** refers to the development of informal methods for managing small innovations rather than large, expensive projects;
- **Tolerance of risk, failure and mistakes** where the organisational context to accept and expect failures in innovation, is recommended;
- **Patient money** indicates the willingness of the organisation to commit monetary resources to innovation projects without attempting to rush the process in order to realise return on investment within a stipulated period;
- **Freedom from turfiness** is the degree of concern to which individuals within an organisation will protect their territorial boundaries instead of supporting the greater good;
- **Cross-functional team** formations are the reference to the ease at which autonomous, functionally complete teams can be assembled;
- **Multiple options** refer to the freedom in which intrapreneurs are able to operate – the freedom to select intra-departmental, intra- and inter-organisational resources – if required.
Pinchot and Pellman (1999:105) added nine further “innovation success factors”:

- *Transmission of vision and strategic intent* refers to the effective empowerment of intrapreneurs by aligning the direction of their innovations with that of the organisation’s vision. This is one method in which freedom can be generated;
- *Support for intrapreneurs* is of utmost importance in realising organisational innovation advantage;
- *Managers who sponsor innovation* by mentoring and coaching can provide an essential source of assistance (Willax, 2004b: 13A);
- *Strong organisational community* means caring for fellow members; this is translated at the organisational level to the type of leadership which will facilitate respect for individual’s contributions;
- *Focus on customers* is an essential interface with intrapreneurs for the creation of new ventures (Willax, 2004b:13A);
- *Measurement of innovation* needs to be structured in a way that will encourage not discourage innovation;
- *Transparency and truth* in support of the free-flow of information is essential to the success of intrapreneuring;
- *Good treatment of people* leads to not only competitive advantage, but also innovation advantage, as intrapreneurs are increasingly encouraged to innovate within this supportive environment;
- *Social, environmental and ethical responsibility* refers to the strong commitment to serving peoples needs demonstrated by the organisation. This allows for a greater flexibility in responding to external changes, creating first-mover advantage in innovation.

3.7.2. The Effect of Organisational Culture on Autonomous Intrapreneurship

Organisational culture reflects the EO of that business and is a strong stimulus for innovation (Dess & Lumpkin, 2005: 147). Innovation is however, a non-linear process that does not follow the traditional planning cycle, which moves from goal to plan to action. The innovation process is characterised by non-linear, unpredictable change, where innovation occurs as a result of learning and the rapid flexibility to adapt as a result of this learning experience, rather than by design (Pinchot, 1985:16; Russell, 1999:68). It is due to the uncertain nature of the innovation process, which renders traditional controls ineffective, hence the need for a more internalised value system to serve as a guide (Russell, 1999:71). Russell (1999:71) cites Ouchi (1980) who prescribes the utilisation of clan control as the best method for leading non-linear change processes. Clan control operates thorough the use of informal rules and encapsulates the effects of organisational culture (Russell, 1999: 71).

Russell and Russell (1992) as cited by Russell (1999:71) have empirically proved the relationship between organisational culture and innovation. This relationship was established by measuring the effects of norms and values on the end results of innovation and then identifying eight cultural elements, which may affect the intrapreneurship process.

The eight cultural elements as established by Russell and Russell (1992) and cited by Russell (1999:71-72) are:

- Value for innovation as a practice and as a source of competitive advantage;
- Norms encouraging creativity among organizational members;
- Norms encouraging search for innovation opportunities from external sources;
- Norms that facilitate resource support for innovative ventures;
- Norms supporting information-sharing between individuals and groups regardless of organisational position;
- Norms that promote tolerance for failure when creative ideas or projects are not successful;
• Norms that encourage the open-minded consideration of new ideas and projects;
• Norms that support the implementation of innovations regardless of the individuals or groups involved in the development of the venture.

These norms establish the climate for utilising autonomous innovation behaviours as a problem-solving methodology and facilitate the processes necessary to promote innovation development, so that intrapreneuring becomes an accepted organisational practice (Russell, 1999:71). The cultural elements are a reflection of the perceptions of the individuals incorporated into the intrapreneurial culture, in a bottom up approach, whereas EO reflects the perceptions of management towards corporate entrepreneurship in a top down approach (Russell, 1999:72).

3.7.3. The Effect of Organisational Structure on Autonomous Intrapreneurship

Russell (1999:72) differentiates between organic and mechanistic organisational structures as influencing the extent to which innovation occurs.

Organic structures are characterised by decentralised structures where positive correlation with innovation has been established. The decentralised structure allows for greater autonomy, resource control and participation thus enabling the initiation and testing of new innovations through increased empowerment (Russell, 1999:72). Empowerment through the informal structure is characterised by “low emphasis on work rules and formal procedures” (Russell, 1999:72). This facilitates the flow of information and exchange of ideas for the stimulation of intrapreneuring.

Pinchot and Pellman (1999: 145) propose that intrapreneurial organisational structures resemble that of a virtual organisation “which is a small line organisation”, where work is subcontracted to external suppliers. The external suppliers comprise teams of intrapreneurs who are employees of the organisation but they are “suppliers of intellectual services in a free internal market” (Pinchot & Pellman, 1999:145).
The formalised structure inherent in mechanistic organisational structures was found to have negative associations with innovation (Tornatzky et al cited in Russell, 1999:72). The controls inherent in this type of organisational structure were found to stifle creativity, providing little opportunities for intrapreneuring.

Russell (1999:77) concedes that while organismic organisations could provide the climate and support needed for intrapreneuring, the autonomous stimulation required for intrapreneuring is not assured. The decentralised structure provided by organic structures could also provide the climate for resource-controlling, autonomous managers to discourage innovation and to retain the status quo. Russell (1999:77) therefore concludes that structure could facilitate or impede innovative behaviour, whether organismic or mechanistic. It is thus imperative that organisational cultural norms be established for the facilitation of a synergistic relationship between culture and structure (Russell, 1999:78).

3.7.4. **The Effect of Organisational Resources on Autonomous Intrapreneurship**

Organisational resources as defined by Russell (1999:72) include intellectual capital, human capital, time and equipment. As intrapreneuring is resource-intensive, the amount available for the stimulation of autonomous innovation will directly affect the ability of the intrapreneur to pursue new venture creation opportunities. These new opportunities cannot be pursued and autonomy over resources cannot be exercised unless the resources are exists (Russell, 1999:72).

3.7.5. **The Effect of Organisational Strategy on Autonomous Intrapreneurship**

The non-linear change process characteristic of innovation and intrapreneuring requires a non-linear strategy (Mintzberg cited by Russell, 1999:70). The strategy for innovation and intrapreneuring will be one where the final result and the execution of the plan will be uncertain; strategic measures for leading the new venture creation such as prescribed processes for behaviour regulations cannot be employed (Russell, 1999:70).
Russell (1999:70) cites Burgelman and Sayres (1986) and Mintzberg (1983) who propose three options available to create innovation advantage:

- “The design of an organisational structures and cultures that will support the autonomous generation of intrapreneurial activities;
- Providing an overall direction for innovative initiatives through entrepreneurial vision;
- Ensuring that promising ventures receive the necessary resources as they move through the uncertain development process”.

These three factors relate to the EO of the management strategy where adaptive modes of thinking are required. Dess and Lumpkin (2005:147) cite Mintzberg (1973) who maintains that proactively searching for new opportunities and radical accomplishments during times of uncertainty is characteristic of entrepreneurial posture. Russell (1999:71) cites Covin and Slevin (1991) as adding a third trait particular to EO – that of management’s inclination to support uncertain innovative ventures.

Strategic managers who require the creation of innovation advantage can achieve this through the creation of organisational structures and cultures conducive to the generation of independent intrapreneurial actions, rather than to actively lead, plan and control these activities (Russell, 1999:71).

Dess and Lumpkin (2005:147) propose five elements of strategy derivation which are seen to be important to the EO of an organisation, to enhance that organisation’s entrepreneurial effectiveness:

3.7.5.1. Autonomy

As the best ideas for new venture creations originate from a bottom-up approach, top management is often unreceptive to these ideas. Organisations must expend additional effort and rewards to induce and maintain support for an EO. Two additional methods for fostering autonomous intrapreneurship are:
• “Skunkworks”, where employees and management are assisted in obtaining independence from the normal organisational routines and procedures by the physical separation of the work environment, thereby creating an independent base for brainstorming;

• Reorganising work units to stimulate entrepreneurial activities where organisational restructuring by the use of autonomous work team may be necessary.

3.7.5.2. Innovativeness

Innovativeness requires a departure from existing practices, which can result in growth and innovation advantage, but also risk in that investments may not result in return on investments.

3.7.5.3. Proactiveness

The organisational efforts to effect new opportunities may not be limited to future needs and trends of existing customers, but should proactively seek to change the nature of the industry in which they compete, to gain the benefit of first-mover advantage. Intensive external environmental monitoring is required for a proactive strategy.

3.7.5.4. Competitive Aggressiveness

This refers to the levels of an organisation’s effort to outperform industry competition. Aggression is required when defending its market position and this can be done through price reductions or benchmarking competitor’s products. This strategy is best utilised by producing superior products rather than eliminating the competition.
3.7.5.5. **Risk-taking**

This strategy refers to the organisation’s willingness to invest despite an uncertain outcome of the investment strategy. Two methods for using a risk-taking strategy are assessing risk factors to reduce risk or using techniques that have been successfully implemented in other industries. Intrapreneurs are not naturally risk-takers, but minimise risk by developing an understanding of the opportunity.

3.8. **Environmental Influences on Intrapreneurship**

External environmental conditions provide the initial stimuli for intrapreneurial activities and are therefore believed to have a strong effect on whether intrapreneurship is promoted or constrained (Russell, 1999: 69). Russell and Russell (1992: 641) postulate the existence of a positive correlation between environmental uncertainty and intrapreneurship. This may be as a result of two factors (Russell & Russell, 1992: 642):

- High levels of uncertainty generate more intrapreneurial behaviour amongst individuals, in a bid to fit and align with the ever changing environment;

- High levels of innovation lead to the perception that the environment is dynamic.

Russell (1999: 69) cites Zahra (1991) who defined a precipitating event as that which would serve as the initial stimulus for innovation behaviour. Individuals within entrepreneurial organisations would be sensitive to the opportunities for new innovation presented by these stimuli. These stimuli would be characteristic of dynamic environments, which would offer many opportunities as opposed to a static environment, which would maintain existing competitive advantage sources, thus offering no stimulus for change and the resultant innovative behaviours (Russell, 1999: 70).
Heterogeneous and hostile environments (Zahra cited by Russell, 1999: 70) show strong positive correlation with increased Intrapreneurship. Heterogeneous environments have multiple markets, diverse or constantly changing customer demands. Hostile environments are characterised by increased levels of competitiveness between industry rivals which forces organisations to become entrepreneurial and adapt their strategies to fit the environment in which they compete (Russell, 1999: 70).

It is thus clear that dynamic, heterogeneous and hostile environments demonstrate a positive relationship with increased intrapreneurial activity through the provision of innovation opportunities or as a result of strategic adaptation, caused by the recognition of a precipitating event (Russell, 1999: 70).

3.9. Conclusion

Chapter three reviewed the key elements of independent entrepreneurship and highlighted the advantages of autonomous intrapreneurship over corporate entrepreneurship. As the individual is the unit of analysis in this study, the importance of the autonomy of the intrapreneur was discussed, with an analysis of the characteristics of the individual intrapreneur. The organizational and environmental elements were contextualised and examined as gateways for or barriers of the stimulation of autonomous intrapreneurship.

While the environment will present opportunities for innovation and the organisation can provide the culture, structure, strategy and freedom to cultivate intrapreneuring, the individual driven by characteristics unique to the intrapreneur, will bring about wealth creation and constant organisational renewal through autonomous activities.

Chapter four will describe the research methodology and research instrument of this study in detail incorporating the data collection techniques.
CHAPTER FOUR
RESEARCH METHODOLOGY AND DESIGN

4.1. Introduction

The main problem which this study aimed to address was the identification of the intrapreneurs at FMSS and to assess the extent to which the organisational context and external environmental influences promotes autonomous behaviour, for the renewal of the organisation through innovation advantage.

The main problem was subdivided into subproblems as follows:

- What is covered by the literature in terms of intrapreneurial characteristics, the best methodology for inducing autonomous behaviour and the organisational and environmental support mechanisms required to encourage this autonomy?
- What proportion of the employees at FMSS display intrapreneurial traits and how are these employees distributed throughout the organisation?
- What organisational support mechanisms are in place for the induction of autonomous intrapreneurship?
- What external environmental elements are conducive to the induction of autonomous intrapreneurship?

The first subproblem was addressed by the detailed literature review in Chapter three, where the characteristics of the intrapreneur were discussed and the importance of organisational support in inducing autonomous intrapreneurship was detailed. The external environmental impact on this behaviour was outlined.

In order to further resolve the subproblems and thereby resolve the main research problem, it was necessary to conduct a precise empirical research study through meticulous planning and a clearly devised research design, in order to test the theoretical framework (Leedy & Ormrod, 2001:94). Research
methodology consists of a portion of the overall research design – how the research will proceed to collect and analyse the data (Leedy et al, 2001: 93).

Basic research, also known as fundamental research, is used to compile knowledge and to develop a deeper understanding of common organisational problems and then to utilise this knowledge to resolve these problems. These solutions are not used for immediate problem resolutions, as is the case with applied research (Sekaran, 2000:7). Applied research, which was used in this research study, is the use of the research performed to resolve specific organisational problems at FMSS with a view to the immediate application of the results, in that organisation (Sekaran, 2000:7).

4.2. The Research Process

The research process is multi-tiered and follows the following stages (Hussey & Hussey, 1997:15; Saunders, Lewis & Thornhill, 2000:4):

- The formulation and clarification of the research topic;
- The literature review;
- The adoption of the research strategy;
- Data collection;
- Data analysis;
- The compilation of the research report.

Both Hussey and Hussey (1997:15) and Saunders et al (2000:4) maintain that there are many overlaps of the different stages of this process and that these different stages may have to be continuously revisited. The multi-tiers of the research process are represented in Figure 4.1 (Saunders et al, 2000:85).
The research process will address the philosophy to be adopted. The logic of the research process will be addressed through the research approach, which will be the result of the philosophy adopted. The research strategy and purpose will then be explained; this is an outcome of the research approach. The time-lines applicable to the research problem will be motivated and finally the research instrument will be discussed.

4.2.1. The Research Philosophy

The research philosophy is dependent on the researcher’s paradigm regarding the development of the knowledge (Hussey & Hussey, 1997:12; Saunders et al, 2000:84). Paradigm, according to Hussey and Hussey (1997:47) refers to “the progress of scientific practice based on people’s philosophies and assumptions about the world and the nature of knowledge”. At this philosophical level, the researcher’s paradigm will be used to express fundamental beliefs about the environment (Hussey & Hussey, 1997:47).

There are two mainstream philosophical views as indicated by Figure 4.1 (Saunders et al, 2000:85):
4.2.1.1. **Positivistic paradigm**

Otherwise referred to as quantitative research, this philosophy is used to objectively collect, collate and analyse data from measurable, quantifiable variables using statistical analysis to test a specific hypothesis (Leedy & Ormrod, 2001:101; Saunders et al, 2000:85). This type of research study concludes with having proved or disproved the hypothesis tested. The researcher is independent of the research subject (Remenyi et al [1998] cited in Saunders et al, 2000:85).

4.2.1.2. **Phenomenological paradigm**

Otherwise known as qualitative research, this paradigm uses a subjective approach to describe or explain complex social situations, from the researcher’s frame of reference (Leedy & Ormrod, 2001:101). A qualitative study will result in the derivation of a hypothesis about the observations.

4.2.1.3. **Distinguishing characteristics of positivistic versus phenomenological paradigms**

It was necessary to firstly examine which type of research approach would best suit the research question. Leedy and Ormrod (2001: 102) propose five distinguishing characteristics of quantitative and qualitative approaches:

- **Purpose**: As the purpose of this study was to determine the percentage, composition and distribution of intrapreneurs at FMSS, this purpose was best be served through a quantitative study. Leedy et al (2001: 102) maintain that quantitative research tests a theory “by confirming and validating results”. The research has attempted to link the results to the objective.

- **The Nature of the Research**: The variables and hypotheses of this study have been defined as well as the instrument of data collection – the survey questionnaire which is suited to that of a quantitative study, where objective measurement of the sample has taken place.
• *The Methods of Data Collection*: This study has best lent itself to a quantitative approach, as the proposed sample of 242 individuals is large.

• *The Form of Reasoning Used in Analysis*: The theoretical framework as detailed in the literature review has been tested by the results. According to Leedy et al (2001: 102-103), this type of reasoning is termed “deductive” as a basic assumption is tested by means of the results obtained. This type of research approach suits a quantitative style.

• *The Communication of the Results*: The sample used in this research was large and because the results were presented by means of statistical data, this was best achieved by utilising a quantitative approach.

As per the five characteristics defined by Leedy et al (2001: 102) a quantitative approach has best served this research.

Both philosophies are seen to be extreme ends of the research scale. Saunders et al (2000:86) believes that business research is a combination of these two extremes. This study is unique to that of FMSS and one could argue that this uniqueness would be best served by use of a qualitative study. The generalisation required of a quantitative study could be considered to be unimportant when compared with the particular circumstances and unit of analysis at FMSS of this study. This research study has however utilised the quantitative approach to test the theoretical framework outlined in chapter three for measurable intrapreneurial characteristics and tangible organisational symbols and espoused values. The construction of the research instrument was effectively used to capture individuals’ perceptions and thoughts through open-ended questions. The phenomenologist philosophy with regards to the thoughts, perceptions and feelings of the individuals was regarded as beyond the scope of this study, and would best be served through an explanatory study.
4.2.2. The Research Approach

A deductive approach, where a theoretical framework is first devised, and then tested by statistical analysis, was used in this study (Saunders et al, 2000:87). In this instance, the theories surrounding the specific characteristics found in autonomous intrapreneurs, the organisational context and the external environmental influences on this autonomy was tested at FMSS.

Saunders et al (2000:87) cites Robson (1993) who lists five progressive stages of deductive research:

- The deduction of a testable variable from the theoretical framework;
- An indication of how the variables are to be measured;
- An empirical survey to test the variable;
- An analysis of the outcome of the empirical survey;
- The modification of the theory as a result of the outcome of the empirical survey.

In light of the discussion above, this research has tested the relationship between the proportion of intrapreneurs and their distribution with the organisational context and the external environment. These two elements and their support of autonomy were tested.

4.2.3. The Research Purpose and Strategy

The research strategy incorporates a broad view of how the research problem will be answered which is further derived by the purpose of the research (Saunders et al, 2000:92). Hussey and Hussey (1997:10) describe four types of research classification according to purpose, three of which were pertinent to this study.

4.2.3.1. Exploratory Research

This type of research is conducted when there is very little prior research or information available about the problem, so the aim is to look for
patterns to clarify understanding of a problem (Hussey & Hussey, 1997:10; Saunders et al, 2000: 97). Exploratory research is used as a means of looking for new insight and to assess the current situation to provide guidance for further research (Hussey & Hussey, 1997:10; Robson [1993] cited in Saunders et al, 2000:97). One of three main ways of conducting this research is through a literature search.

4.2.3.2. **Descriptive Research**

This approach is used to describe and profile existing situations and may be seen as an extension of exploratory research. It is thus necessary to clearly portray the current situation prior to quantitative data collection and statistical data collation (Hussey & Hussey, 1997:10-11; Saunders et al, 2000: 97).

4.2.3.3. **Analytical Research**

Descriptive research is continued in analytical research where causal relationships are established by the extraction and analysis of data (Hussey & Hussey, 1997:11).

This research study has combined the three research purposes: exploratory, descriptive and analytical. The exploratory research component has been completed with a detailed literature review, which established the benefits of autonomous intrapreneurship and the characteristics of the intrapreneur, along with the influences of the organisational context and the environment. The compilation of a quantitative instrument to collect and analyse the data has continued in analytical research, where the research problem was addressed in an attempt to establish a causal relationship.

The research strategy will be addressed by the survey method, which Saunders et al (2000:94) associates with a deductive approach.
4.2.3.4 **The survey method**

Surveys allow for effective and economical data collection of a large sample (Saunders et al, 2000:94) through the questionnaire. A descriptive survey is commonly associated with business research in the form of attitude surveys, and an analytical survey is used to establish a relationship between the variables measured (Hussey & Hussey, 1997:66). The latter requires familiarity with the theoretical content of the subject under research.

This study has therefore employed both descriptive and analytical survey approaches, using the literature review to establish a causal relationship from the results obtained.

4.2.4. **The Research Time Horizon**

The time perspectives in research design are, according to Saunders et al (2000:96) independent of research design and are more relevant to the research question. Should the research require the study of change and development – the “representation of events over a given period” (Saunders et al, 2000:96), a longitudinal study would be deemed appropriate. Should the research require the study of events at a particular time, a cross-sectional study would be more suitable. The latter uses a greater prevalence of the survey strategy (Saunders et al, 2000:96).

This research study was undertaken at a particular point in time and therefore a cross-sectional survey method was best suited to the effective resolution of the research problem.

4.2.5. **Data Collection Methods**

The observations arising from the research question must be measured with an instrument that will provide maximum value to solve the problem under investigation (Leedy et al, 2001: 98).
Data collection methods are concerned with the collecting of the data with a research instrument. In a quantitative approach, a research instrument can be considered to be questionnaires and structured interviews (Hussey & Hussey, 1997:140).

Hussey and Hussey (1997:140) propose four different data collection methods associated with quantitative research:

- **Diaries** can be used to collect quantitative data and is best used as the precursor to in-depth interviews;
- **Observation** is a data collection method that takes place in a natural or laboratory environment. Data can be collected using non-participant observation where the sample is observed and actions and behaviour recorded without any involvement from the researcher. Participant observation requires the researcher to become wholly engaged in the observation in an effort to communicate the means of “obtaining a detailed understanding of values, motives and practices of those being observed” (Hussey & Hussey, 1997:159);
- **Interviews** entail the questioning of the selected sample through structured or unstructured questioning. Structured, closed questions are more commonly associated with quantitative research studies;
- **Questionnaires**.

The researcher has selected the fourth method of data collection associated with quantitative research studies, the questionnaire, as the method for data collection in this study.

### 4.3. Primary Data Collection using the Questionnaire

The research instrument that was used in this study was the survey questionnaire. Saunders et al (2000:279) write that the use of the questionnaire is best served when conducting descriptive or analytical research. This was used to obtain a better understanding of the current situation at FMSS – “identifying the characteristics of an observed phenomenon” (Leedy et al, 2001: Chapter 4  
Research Methodology and Design
Hussey and Hussey (1997:161) define the questionnaire as a “list of carefully structured questions” which has the objective of obtaining responses from the representative sample. Questionnaires are used for the survey of a large sample and uses closed questions. “Checklists and rating scales” (Leedy and Ormrod, 2001:197) are used and the questions are coded at the design stage. Any open-ended questions, which are qualitative in nature, have to be coded only after completion by the sample. Questions must be structured so that they engender common understanding (Hussey & Hussey, 1997: 161).

Leedy and Ormrod (2001:197) advocate the advantages of the paper and pencil questionnaire as follows:

- It can incorporate a large sample;
- It can cover a representative sample spread over large geographical areas;
- It is cheaper and less time consuming to administer;
- It affords the respondents a certain degree of anonymity and could assist in eliciting more truthful responses.

The main disadvantage associated with questionnaires, in particular postal surveys, is that of non-responses (Leedy & Ormrod, 2001:197), leading to non-response bias (Hussey & Hussey, 1997:164). Questionnaire non-response occurs when not all the questionnaires are returned, whereas item non-response occurs when not all the questions have been answered. This is seen to be important as non-response could skew the results of the survey, rendering the sample as being non-representative (Hussey & Hussey, 1997:164).

4.3.1. **Type and Choice of Questionnaire**

The design of a questionnaire is dependant on the amount of contact a researcher has with the sample, therefore the design can be adapted accordingly (Saunders et al, 2000: 280). Self-administered questionnaires are
those that are completed by the sample, compared with that of interviewer questionnaires which are completed by the researcher, using either telephonic or structured interviewing methods (Saunders et al, 2000:280).

Due to the fact that this was a study conducted by an internal researcher, the self-administered questionnaire was used with a delivery and collection method, to ensure maximum responses in conjunction with an interviewer administered technique, presented as a structured interview.

4.3.2. Design of the Questionnaire

Saunders et al (2000:290) cite Bourque and Clarke (1994) who maintain that the following should be addressed when designing a questionnaire:

- Adapt or adopt questions used by other questionnaires;
- Develop new questions.

This study has utilised a combination of the recommendations as is apparent in Appendix 4.2 (page 115).

4.3.2.1. The Use of Open-ended and Closed Questions

The questionnaire has consisted of closed questions and one open-ended question. Closed questions require the respondent to choose from a pre-determined range of alternatives. The closed questions used a rating scale, where a “scaling device is used to record responses” (Saunders et al, 2000:291). By contrast, open-ended questions allow the respondents to answer independently (Saunders et al, 2000:291). Open-ended questions are time-consuming to code, and can only be coded once all the responses have been received. For the purposes of this study, it was necessary to capture the respondent's perceptions and thoughts through an open-ended question at the end of the questionnaire, as advocated by Sekaran (2000:247), thereby maintaining the quantitative approach adopted for this study.
4.3.2.2. **The Rating Scale**

The five-point Likert scale was used in the closed questions. The respondent is questioned on a scale as to the extent of their agreement or disagreement with a statement (Saunders et al, 2000:295).

The questionnaire attached as Appendix 4.2 (page 115) consists of four sections.

Section One of the questionnaire (refer Appendix 4.2, page 115) consisted of demographical information concerning the respondent. This has served a dual purpose. The first is to ensure that easier questions are encountered initially, as advocated by Festinger and Katz (1966), cited by Sekaran (2000:240). This funnel approach ensures that the respondent is led from easy-to-answer questions, to that which is progressively more difficult. The second purpose for the placement of the demographical information at the beginning of the questionnaire is to attempt to elicit a psychological connection between the respondent and the questionnaire.

Section Two consisted of closed questions derived from Pinchot’s Test “Are you an Intrapreneur? (1985:31). The questions have been adapted to suit the five-point Likert scale by transforming the questions into statements and altering the language style used to suit the sample.

Section Three consisted of closed questions derived from The Pinchot and Company Innovation Climate Questionnaire (Pinchot & Pellman, 1999: 107-116). The statements were adapted to suit the five-point Likert scale and to facilitate more effective coding and decoding of the results, by selecting a phrase from each of the 19 category questions. The selection of the phrases were aligned to reflect and test for FMSS’s organisational context with respect to structure, culture and strategy.

Section Four consisted of closed questions and one open-ended question to determine the extent to which the external environment influences innovation at FMSS.
4.3.2.3. **The Pilot Test**

The purpose of a pilot test, according to Saunders et al (2000:305) is to ensure common understanding so that there are no problems encountered in answering the questions or in recording the information. The questionnaire was initially presented to a lecturer at the NMMU Business School for refining and a senior statistician affiliated with the NMMU, prior to pilot testing.

The number of persons used for the pilot testing was nine and the test sample was closely representative of the sample.

4.3.3. **The Validity of the Research Instrument**

This validity refers to the credibility of the overall study (Leedy et al, 2001: 103) and would need to address both internal and external validity.

Internal validity can only be achieved when the researcher can reach only one possible explanation for the results obtained. For the purposes of this research study, a double-blind experiment was utilised. This will entail the sample being unaware of the objectives of this study.

External validity is attained when the conclusions drawn from this research study can be applied to other situations. While a representative sample would be ideal, this will have limited external validity, in that the sample would only be representative within an organisational context specific to FMSS.

Leedy and Ormrod (2001: 98) maintain that “the validity of an instrument is the extent from which the instrument measures what it is supposed to measure”. There are four validity determinants (Leedy et al, 2001: 98):

- Face validity is the degree to which the appearance of the instrument appears to measure a particular characteristic;
- Content validity is the degree of relevance to which the instrument measures a particular level of content area;
Criterion validity is the degree to which an assessment instrument results correlates with another;

Construct validity is the degree to which an intangible characteristic that cannot be directly observed but must be deduced from behavioural patterns.

The research instrument particular to this study had both face and content validity. Face validity was achieved through the pilot study, where the logic of the questionnaire was tested. The content validity was established through the use of a lecturer at the NMMU Business School for refining the questionnaire, prior to pilot testing.

4.3.4. The Reliability of the Research Instrument

“The reliability of a measurement instrument is the extent to which it yields consistent results when the characteristic being measured hasn’t changed” (Leedy et al, 2001: 99).

The reliability of the questionnaire can be ascertained from three approaches (Saunders et al, 2000:307):

- **Test re-test** involves the administration of the questionnaire twice to the same respondents in identical conditions in both cases, in order to correlate the first and second sets of data.
- **Internal consistency** consists of correlating “the responses to each question in the questionnaire with those to other questions” (Saunders et al, 2000:307):
- **Alternative form** compares responses to different forms of the same question located elsewhere in the questionnaire, to serve as check questions.

This study has used two check questions to test for reliability as well as Crohnbach’s alpha, which was effected by a senior statistician at the NMMU. Cronbach's alpha measures how well the items measuring a concept align with
one another (Sekaran, 2000:308). The closer this coefficient of reliability is to 1.0, the higher the measure of internal consistency.

### 4.4. Sample Selection

The population in a research study consists of the “complete group of people, events or things of interest that the researcher wishes to investigate” (Sekaran, 2000:266). The population in this study referred to all the employees of FMSS and the element is a single employee within this population. The population frame lists all the elements of the population. The Employment Equity listing at FMSS as of September 2006 served as the population frame for this study. The research sample is a portion of the population (Sekaran, 2000:267).

While some research questions facilitate the surveying of the entire population, in other instances this is not practical due to the possible size of the sample. A representative sample is therefore required, from which generalisations can be inferred from the results. Hussey and Hussey (1997:144) maintain that for a sample to be representative, it must be:

- Chosen randomly;
- Unbiased;
- Of sufficient size to satisfy the requirements of the research.

#### 4.4.1. Sampling Techniques

Two types of sampling techniques are available to the researcher (Sekaran, 2000: 271):

- Probability sampling where the element has a known chance of being selected from the population;
- Non-probability sampling where the element has an unknown chance of being selected from the population.
Sekaran (2000:277) further states that non-probability sampling cannot be generalised to the population, in this case all the employees at FMSS. There are two types of non-probability sampling techniques that could apply to this study:

- Convenience sampling involves data collection from a sample who are conveniently located to provide the information;
- Purposive sampling involves data collection from a sample from specific elements.

In order to answer the research question and sub-problems pertinent to this study, purposive sampling techniques were utilised. The sample, consisting of all the employees at FMSS who have been permanently employed at the organization for 12 months or longer, were deemed to be in the best position to provide this information. This type of purposive sampling technique is known as judgment sampling (Sekaran, 2000:278). Sekaran (2000:278) writes that this technique is used when the information required for the research, is limited to a certain number or category of people. He further states that this is the “only viable sampling method for obtaining the type of information that is required from very specific pockets of people who alone possess the needed facts” (Sekaran, 2000:278).

4.5. Research Access and Ethics

Both research access and ethics are, according to Saunders et al (2000:113), important considerations when conducting research. Failure to correctly anticipate issues could prove problematic when conducting the research.

4.5.1. Research Access

Business research access will determine the success of the data collection methods (Saunders et al, 2000:114). There are different levels of access with regard to research.
The first involves physical access to the organisation, where problems to be anticipated include the availability of participants due to limited time and resources. Physical access may also be impeded by lack of interest in the research topic by the organisation or by refusing access due to unrelated internal factors (Saunders et al, 2000: 114).

Access not only incorporates the formal request as per Appendix 4.1 and the subsequent permission from management, but also the informal acceptance from potential participants to allow the researcher access to the data these participants can provide, known as continuing access (Saunders et al, 2000:114). Continuing access is another access level, but is not limited to a single event. Rather, it is a series of events where the researcher may have to conduct research in different departments of the organisation with a different set of participants, resulting in a continuous need for informal access (Saunders et al, 2000:114).

Cognitive access, the broadest level of access according to Saunders et al (2000:115), is the ability of the researcher to “select a representative sample” (Saunders et al, 2000:115) with research reliability and validity intact.

This study has used the following research strategies as advocated by Saunders et al (2000:118) in order to gain access to FMSS:

- Allowing sufficient time to gain physical access;
- Use of existing contacts within the organisation, in this case the researcher is an internal researcher;
- Providing clarity of purpose and type of access required (refer Appendix 4.1);
- Clarifying methods for overcoming organisational concerns regarding access;
- Identification of possible organisational benefits which will result from the granting of access for the research to be conducted;
As an internal researcher, the particular problems that were anticipated were those that might have arose from cognitive access, where participants might be suspicious of the intentions of the internal researcher.

4.5.2. Research Ethics

Business research ethics refers to a code of conduct, which requires the pursuit of organisational interests rather than self-interests. Ethical consideration applies to the subject organisation, the researcher, the respondents and the analysts (Sekaran, 2000:17).

Some ethical issues that affect the research process are the following (Saunders et al, 2000:132):

- Maintaining the privacy and anonymity of individuals;
- Ensuring that participation is voluntary and the right of the sample to withdraw from the research process;
- Maintaining an openness with respect to the consent and possibility of misleading the participants;
- Protection of the confidentiality of the data provided;
- Participants’ reaction to the data collection methodology;
- Participants’ reactions to the use, analysis and presentation of data provided;
- Maintenance of objectivity of the researcher;

Leedy and Ormrod (2001:107) classify these issues into four categories:

4.5.2.1. Protection from Harm

Respondents should not be subjected to any form of physical or mental harm. This includes the stress or embarrassment that could arise from reporting data that can be linked to an individual respondent (Saunders et al, 2000:140).
4.5.2.2. **Informed Consent**

Informed consent relates to the participation of the respondent in the research being undertaken, where the respondent’s consent is freely given and this consent is based on full disclosure about participation rights the use of the research data (Leedy & Ormrod, 2001:107). Participation rights should be clarified to the extent that respondents are made aware that they are able to withdraw from the research at any point.

This research study has covered the ethics of informed consent by ensuring that the key points of the study were well displayed and attached to the first page of the research instrument (Refer Appendix 4.2). The key elements as advocated by Saunders et al (2000:36) that were be addressed are:

- **The nature of the research** where the study was be briefly described, including the nature of the sample;
- **The requirements of taking part** where the participation activities and duration of these activities were explained;
- **The implications of taking part and participants’ rights** where the voluntary nature of participation and the right of the participant to withdraw from partaking in this study at any point, was clearly demarcated. Additionally, the anonymity and the right of the participants to anonymity was also explained and highlighted;
- **The use of data and the data collection methods** with regard to who will have access to the data collected, what will happen to the data after the completion of the research study and where the data will be preserved.

4.5.2.3. **The Right to Privacy**

The right of the individual to expect privacy in a research report is of paramount importance when considering ethics, unless expressly granted in writing by the incumbent (Leedy & Ormrod, 2001:108). Leedy & Ormrod (2001:108) advocate the use of assigned codes for against any written paperwork, rather than the use of any participants’ names.
4.5.2.4. Honesty with Professional Colleagues

Honesty not only extends to that of reporting the information in a complete, contextualised and unbiased way. Appropriate accreditation of the use of another’s ideas or writings is mandatory (Leedy & Ormrod, 2001:108).

4.6. Conclusion

Chapter Four outlined the basic research methodology that was undertaken, an outlined in detail the research design pertinent to the survey method. The design of the research instrument, the questionnaire, was discussed including the testing for reliability and validity. The size and selection of the sample was justified. Data collection methods and strategies for research access were outlined. The importance of research ethics was highlighted.

Chapter Five will explain the analysis techniques used to capture the results of the survey. These results will be presented, summarised and discussed with reference to the research problem and its subproblems.
CHAPTER FIVE
PRESENTATION AND DISCUSSION OF THE RESULTS

5.1. Introduction

This chapter will initially outline the rationale for the analysis techniques used to dissect the data presented by the research instrument, the questionnaire, on conducting the survey at FMSS. The results of the data will then be analysed, interpreted and presented using data tables and graphs.

5.2. The Coding of the Questionnaire

Each questionnaire was firstly coded with a questionnaire number. This has served to identify the questionnaire, an essential requirement when interpreting the analysed data.

The pre-coding methodology adopted for the questionnaire is one that has been advocated by Hussey & Hussey (1997:175). The potential answer to each question had an adjacent number, indicating the potential response code to that question (refer Appendix 4.2).

5.3. Analysing the Quantitative data

The statistical analysis was conducted using the statistical package available on Microsoft Excel 2003. The combination of exploratory, descriptive and analytical research is best suited to statistical analysis for presenting frequencies and for the measurement of central tendencies, known as location (Hussey & Hussey, 1997:189).

The examinations of frequency distributions are advocated by Hussey and Hussey (1997:189), as the first stage of quantitative data analysis. Frequencies represent the “total number of observations for a variable under study” (Hussey & Hussey, 1997:189).
Central tendency measurement indicates a large frequency distribution by using one representative value. According to Hussey and Hussey (1997:202), the main measures of central tendencies are:

- The mean;
- The median;
- The mode.

5.3.1. The Mean

The mean measures the “arithmetical average of a frequency distribution” (Hussey & Hussey, 1997:203). Some advantages of utilising the mean as a measure of location are:

- The average can be precisely calculated;
- All the data are used;
- It can serve as a basis for further statistics.

Some disadvantages of using the mean as a measure of location are:

- Extreme results affects the average to a great degree;
- Discrete data can yield impossible results.

5.3.2. The Median

The median is the “mid-value in a frequency distribution that has been arranged in size order” (Hussey & Hussey, 1997:243). Some advantages of using the median as a measure of location are:

- Extremes do not affect the result;
- The median can be ascertained despite missing data;
- Actual data is represented.

Some disadvantages of utilising the median are:
• The median value can only be estimated;
• The median value cannot be used for further statistical calculations.

5.3.3. The Mode

The mode is the most common value found in a frequency distribution and may consist of more than a single mode (Hussey & Hussey, 1997: 244).

5.3.4. Distribution Patterns

As they are measurements of central tendency, the mean, median and mode values reflect the approximate middle of a data set (Hussey & Hussey, 1997: 207). When the frequency distribution curve is symmetrical, the mean, median and mode values all calculate to the same value, known as normal distribution (Hussey & Hussey, 1997: 207).

A skewed curve indicates that the three central tendencies calculate to differing values and this measurement is further delineated to reflect positively and negatively skewed data. Positively skewed data indicates that most of the data is at the lower scale and conversely, negatively skewed data means that most of the data is concentrated at the higher end of the scale (Hussey & Hussey, 1997: 208).

5.4. The Analysis of Section One: Biographical Details

The questionnaire administered in October 2006 on the employees of FMSS yielded the following biographical results from Section One, as represented below by Table 5.1.
### Table 5.1: The Biographical Information Summary

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.1 Age:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category</td>
<td>Frequency</td>
<td>Frequency %</td>
</tr>
<tr>
<td>18 to 24</td>
<td>14</td>
<td>8%</td>
</tr>
<tr>
<td>25 to 29</td>
<td>32</td>
<td>18%</td>
</tr>
<tr>
<td>30 to 39</td>
<td>61</td>
<td>35%</td>
</tr>
<tr>
<td>40 to 49</td>
<td>47</td>
<td>27%</td>
</tr>
<tr>
<td>50 and older</td>
<td>21</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>175</td>
<td>100%</td>
</tr>
</tbody>
</table>

| **1.2 Gender:**   |           |             |
| Category          | Frequency | Frequency % |
| Female            | 106       | 61%         |
| Male              | 69        | 39%         |
| **Total**         | 175       | 100%        |

| **1.3 Ethnicity** |           |             |
| Category          | Frequency | Frequency % |
| Black             | 15        | 9%          |
| Coloured          | 116       | 66%         |
| Indian            | 4         | 2%          |
| White             | 38        | 22%         |
| Other             | 2         | 1%          |
| **Total**         | 175       | 100%        |

| **1.4 Educational Levels** |           |             |
| Category                  | Frequency | Frequency % |
| Grade 11 / Standard 9 and below | 67     | 38%         |
| Matric                    | 79        | 45%         |
| M+3 (eg Technikon Diploma) | 13       | 7%          |
| M+4 (eg Bachelors Degree)  | 8         | 5%          |
| Other - please specify    | 8         | 5%          |
| **Total**                 | 175       | 100%        |

| **1.5 Employment Period** |           |             |
| Category                  | Frequency | Frequency % |
| less than 12 months       | 0         | 0%          |
| 1 to 3 years              | 40        | 23%         |
| 4 to 5 years              | 22        | 13%         |
| 6 to 9 years              | 45        | 26%         |
| 10 or more years          | 68        | 39%         |
| **Total**                 | 175       | 100%        |
### 1.6 Department

<table>
<thead>
<tr>
<th>Category</th>
<th>Frequency</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softs &amp; Cork &amp; Silk Production</td>
<td>53</td>
<td>30%</td>
</tr>
<tr>
<td>CHG &amp; MLS &amp; Heatshields Production</td>
<td>38</td>
<td>22%</td>
</tr>
<tr>
<td>Kitting &amp; Warehouse</td>
<td>31</td>
<td>18%</td>
</tr>
<tr>
<td>Receiving, despatch and Logistics</td>
<td>13</td>
<td>7%</td>
</tr>
<tr>
<td>Toolroom, Maintenance &amp; Quality</td>
<td>16</td>
<td>9%</td>
</tr>
<tr>
<td>Finance, Sales &amp; Administration</td>
<td>14</td>
<td>8%</td>
</tr>
<tr>
<td>Product Development and Engineering</td>
<td>10</td>
<td>6%</td>
</tr>
<tr>
<td>Other - please specify</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>175</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The results of the survey indicate that the majority of the respondents consisted of Coloured females who fell into the 30 to 39 year age grouping. The average respondent was educated up to Matric level and has been employed by FMSS for a period of 10 years or more. The largest number of departmental responses was received from the Softs, Cork and Silk production area and accounted for 30 per cent of the sample.

One of the subproblems identified in this research was to determine the distribution of the intrapreneurs at FMSS. The analysis of the biographical characteristics particular to that of gender, ethnicity, educational levels and particularly of departments has assisted in the resolution of this identified subproblem.

The gender, ethnicity and department variables of the sample when compared with the entire population of FMSS, who fall within the research parameters, indicate the degree of correlation.
The percentage of female respondents was much higher at 61 per cent of the sample, than that of the total population, which currently totals 55 per cent. Subsequently, the male sample was lower at 39 per cent. This is attributed to the fact that the population split between the female and male population at FMSS is split at the ratio 55:45 and the low male numbers are a function of the respondents.

The percentage response from the Black, Indian and White ethnic sample corresponded with the total population demographic. The Coloured ethnic group, which was the largest ethnic group recorded, did not however correspond with the Coloured total population sample with specific regards to...
the comparative percentage of recorded responses. This sample had a 66 per cent response, compared with a total population of 60 per cent. The ethnic groups, when compared proportionally however, correlated with the total population at FMSS. The female / male split, by ethnic group is represented by Table 5.2.

Table 5.2: The female/ male split by ethnic group

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Female Sample</th>
<th>Female Population</th>
<th>Male Sample</th>
<th>Male Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>4%</td>
<td>6%</td>
<td>16%</td>
<td>9%</td>
</tr>
<tr>
<td>Coloured</td>
<td>81%</td>
<td>80%</td>
<td>43%</td>
<td>70%</td>
</tr>
<tr>
<td>Indian</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td>White</td>
<td>12%</td>
<td>12%</td>
<td>36%</td>
<td>19%</td>
</tr>
<tr>
<td>Other</td>
<td>1%</td>
<td>0%</td>
<td>1%</td>
<td>0%</td>
</tr>
</tbody>
</table>

The ethnic split by gender indicated a strong correlation when comparing the female sample to the total population. The male comparison was more erratic, but the proportionate split between sample and total FMSS population was aligned.

![Figure 5.3: A departmental and ethnicity analysis](image)

The ethnic analysis by department indicated that a high proportion of the production departments directly involved in manufacturing, and additionally the
Kitting and Warehouse, Receiving, Despatch and Logistics and Toolroom, Maintenance and Quality departments had a predominance of Coloured respondents. The remaining departments, comprising typically the engineers, accountants, administration staff and management at FMSS yielded a high proportion of White respondents.

The educational level analysis by department showed a correlation between the manufacturing production departments and lowered educational levels of the respondents associated with these departments. These lowered educational levels were predominantly Matriculated individuals including the departments comprising the Finance, Sales and Administration staff and Management. The Kitting and Warehouse department reflected a 71 per cent incidence of the respondents having incomplete schooling. The departments comprising the engineering fraternity at FMSS indicated the highest percentage of educational levels with 40 per cent and 30 per cent of the respondents in possession of a diploma or of a degree respectively.

Figure 5.4: A departmental and educational level analysis
5.5. The Analysis of Section Two: Individual Traits

The analysis of section two addressed the portion of the identified subproblem that determines what proportion of the employees at FMSS display intrapreneurial traits and how these employees are distributed throughout the organisation.

The analysis of the distribution patterns was addressed through the distribution by department, gender and educational level. The proportion of employees who displayed intrapreneurial traits was addressed through the way in which this section of the questionnaire was structured. All questions from this section were structured in a one-way direction, where any negatively inclined responses were indicative of a non-intrapreneurial perspective and any positively inclined responses indicated a strong intrapreneurial mind-set. This section of the questionnaire was based on Pinchot’s (1985:31) test: "Are you an intrapreneur?" as indicated in Chapter four. In advocating this test, Pinchot stated that a strong positive correlation with the questions signified positive intrapreneurial behaviour (Pinchot, 1985:30).

The response from Section two was tested for reliability using Cronbach’s alpha, by a senior statistician at the NMMU. Cronbach’s alpha measures how well the items measuring a concept, in this case the intrapreneurial traits displayed by an individual, align with one another (Sekaran, 2000:308). The closer this coefficient of reliability is to 1.0, the higher the measure of internal consistency. The factor in this study measured 0.67. According to Sekaran (2000:308), Cronbach’s alpha of 0.6 and less is a poor indicator for reliability, an alpha score of 0.7 is acceptable and an alpha score of 0.80 is good. This measure indicated that there is a requirement for further in-depth explorative studies (Hair et al, 1998, cited in Amo & Kolvereid, 2005:13).

Section two was factorised to reach a single score. A factor of 3.4 and above was deemed to be the cutpoint indicative of an intrapreneurial outlook.

Table 5.3 summarises the frequency and the frequency percentage of responses to the questions contained in Section two of the questionnaire.
## Table 5.3: Frequency Percentage responses to Section Two

<table>
<thead>
<tr>
<th>Measurement</th>
<th>SD</th>
<th>D</th>
<th>Neither</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.1 My need to improve things takes up more of my time than keeping things the way they are.</td>
<td>4%</td>
<td>19%</td>
<td>16%</td>
<td>40%</td>
<td>21%</td>
</tr>
<tr>
<td>Q2.2 I am excited about what I do at work.</td>
<td>6%</td>
<td>11%</td>
<td>11%</td>
<td>41%</td>
<td>30%</td>
</tr>
<tr>
<td>Q2.3 I think about new business ideas while doing mundane things, like travelling to work.</td>
<td>3%</td>
<td>21%</td>
<td>15%</td>
<td>42%</td>
<td>19%</td>
</tr>
<tr>
<td>Q2.4 I can see the action steps needed when I think of ways to make new ideas happen.</td>
<td>1%</td>
<td>8%</td>
<td>10%</td>
<td>55%</td>
<td>26%</td>
</tr>
<tr>
<td>Q2.5 I often get into trouble at work because I try new things that exceed my authority.</td>
<td>19%</td>
<td>47%</td>
<td>16%</td>
<td>12%</td>
<td>6%</td>
</tr>
<tr>
<td>Q2.6 I am able to keep my ideas to myself until I have tried them out.</td>
<td>7%</td>
<td>33%</td>
<td>16%</td>
<td>34%</td>
<td>10%</td>
</tr>
<tr>
<td>Q2.7 I have kept working on new ideas even though it seemed at times as if I might fail.</td>
<td>3%</td>
<td>23%</td>
<td>17%</td>
<td>46%</td>
<td>10%</td>
</tr>
<tr>
<td>Q2.8 I have both fans and critics of my ideas.</td>
<td>3%</td>
<td>13%</td>
<td>29%</td>
<td>45%</td>
<td>9%</td>
</tr>
<tr>
<td>Q2.9 I have a network of friends at work, who I can rely on to help me in trying out new ideas.</td>
<td>9%</td>
<td>19%</td>
<td>14%</td>
<td>43%</td>
<td>15%</td>
</tr>
<tr>
<td>Q2.10 I get easily upset by others' incompetent attempts to try out parts of my ideas.</td>
<td>9%</td>
<td>45%</td>
<td>18%</td>
<td>21%</td>
<td>7%</td>
</tr>
</tbody>
</table>
When trying out my own ideas, I think that I can overcome my need to want to do all the work myself, and share the work in a team.

I would be willing to give up a salary, if the rewards for successful implementation of my new business ideas were enough.

Questions 2.1, 2.4, 2.8, 2.9 and 2.11 tested the individual’s internal locus of control. They all yielded an above 40 per cent agreement with the statements, indicating a strong prevalence of the influence of the sample’s thoughts and perceptions on the intrapreneurial process. This is borne out by the negative coefficient of skewness indicated in Table 5.4 for all of the five above-mentioned questions, which indicates a high level of unanimity with the statements.

**Table 5.4: Descriptive statistical responses to Locus of Control**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.1 My need to improve things takes up more of my time than keeping things the way they are.</td>
<td>173</td>
<td>3.555</td>
<td>4</td>
<td>4</td>
<td>1.143</td>
<td>-0.503</td>
</tr>
<tr>
<td>Q2.4 I can see the action steps needed when I think of ways to make new ideas happen.</td>
<td>172</td>
<td>3.971</td>
<td>4</td>
<td>4</td>
<td>0.881</td>
<td>-1.032</td>
</tr>
<tr>
<td>Q2.8 I have both fans and critics of my ideas.</td>
<td>174</td>
<td>3.437</td>
<td>4</td>
<td>4</td>
<td>0.952</td>
<td>-0.569</td>
</tr>
<tr>
<td>Q2.9 I have a network of friends at work, who I can rely on to help me in trying out new ideas.</td>
<td>175</td>
<td>3.360</td>
<td>4</td>
<td>4</td>
<td>1.199</td>
<td>-0.504</td>
</tr>
</tbody>
</table>
Questions 2.2 and 2.5 tested the sample’s need for autonomy. This resulted in 41 per cent and 30 per cent of the sample agreeing or strongly agreeing with question 2.2 but 47 per cent and 19 per cent disagreeing of strongly disagreeing with question 2.5. This statement tested the lengths to which an individual will go to turn their vision into a reality. This ambiguity is indicated by the negative coefficient of skewness indicated in Table 5.5 for question 2.2 and the positive coefficient of skewness for question 5.5.

### Table 5.5: Descriptive statistical responses to Need for Autonomy

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.2 I am excited about what I do at work.</td>
<td>174</td>
<td>3.782</td>
<td>4</td>
<td>4</td>
<td>1.177</td>
<td>-0.922</td>
</tr>
<tr>
<td>Q2.5 I often get into trouble at work because I try new things that exceed my authority.</td>
<td>174</td>
<td>2.385</td>
<td>2</td>
<td>2</td>
<td>1.100</td>
<td>0.798</td>
</tr>
</tbody>
</table>

Questions 2.3 and 2.7 measured the determination and commitment displayed by the sample. Question 2.3 recorded at 42 per cent agreement with the statement and specifically measured the degree to which the respondent was immersed in the generation of new business opportunities as outlined in Chapter three. Question 2.7 measured a 46 per cent agreement and a 23 per cent disagreement with the statement. This question generated a negative coefficient of skewness, indicating an alignment with the top end of the scale, as per Table 5.6.
Table 5.6: Descriptive statistical responses to Determination and Commitment

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.3</td>
<td>175</td>
<td>3.537</td>
<td>4</td>
<td>4</td>
<td>1.113</td>
<td>-0.449</td>
</tr>
<tr>
<td>I think about new business ideas while doing mundane things, like travelling to work.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q2.7</td>
<td>174</td>
<td>3.368</td>
<td>4</td>
<td>4</td>
<td>1.055</td>
<td>-0.424</td>
</tr>
<tr>
<td>I have kept working on new ideas even though it seemed at times as if I might fail.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question 2.6 measured the capacity of the sample for tolerating risk. The result was mixed, with 33 per cent of the sample indicating a low tolerance for risk by disagreeing with the statement, whilst 34 per cent of the sample agreed with the statement, thereby signifying a degree of willingness to tolerate risk. Sixteen per cent were undecided but the coefficient of skewness was negative (refer Table 5.7), reflecting a tendency towards the higher end of the scale.

Table 5.7: Descriptive statistical responses to Risk Tolerance

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.6</td>
<td>172</td>
<td>3.081</td>
<td>3</td>
<td>4</td>
<td>1.167</td>
<td>-0.026</td>
</tr>
<tr>
<td>I am able to keep my ideas to myself until I have tried them out.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Questions 2.10 and 2.12 both measured the prevalence of the drive for achievement amongst the sample. Chapter three’s literature review states that this trait is consistent with the intrapreneur’s high internal locus of control (Timmons & Spinelli, 2004:255). There is however ambiguity evident with Question 2.10, which is indicated by the positive coefficient of skewness recorded. Question 2.12 does not provide any conclusive data when analysing the frequency percentages. Although the coefficient of skewness indicated in Table 5.8 is negative, 26 per cent of the sample disagree or are undecided with...
regards to the statement, whilst a further 23 per cent are in agreement with the statement.

**Table 5.8: Descriptive statistical responses to the Drive for Achievement**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q2.10 I get easily upset by others’ incompetent attempts to try out parts of my ideas.</td>
<td>173</td>
<td>2.711</td>
<td>2</td>
<td>2</td>
<td>1.109</td>
<td>0.490</td>
</tr>
<tr>
<td>Q2.12 I would be willing to give up a salary, if the rewards for successful implementation of my new business ideas were enough.</td>
<td>173</td>
<td>2.896</td>
<td>3</td>
<td>3</td>
<td>1.225</td>
<td>0.086</td>
</tr>
</tbody>
</table>

In determining the single factorised score from the sample, any responses of seven or less from the total of twelve questions from this section was discounted. In this study there were no responses having recorded a score of seven or less. The analysis by department, to determine the number of individuals per department who scored greater than or equal to the predetermined cutpoint of 3.4 can be summarised as per Figure 5.5 below.
The department that recorded the highest prevalence of respondents as a percentage of that department, exhibiting intrapreneurial behaviour is that of the Product Development and Engineering departments, with 50 per cent. This directly correlates with Pinchot’s belief (1985:56) that intrapreneurs are both highly educated and highly skilled with particular reference to the technical fields, as this department was determined as the most highly educated of all seven departments identified in this study.

Contrary to this statement however, is the number of intrapreneurs recorded against the production departments, expressed as a percentage of the total number of intrapreneurs and of the total number of respondents. The CHG, MLS and Heatshield department has a predominance of intrapreneurial employees, with a large proportion of the respondents, at 27 per cent of the total number of identified intrapreneurs and ten per cent of the total population, signifying intrapreneurial behaviour. The educational level in this department
was predominantly that of Matriculated individuals and to a smaller degree, those respondents who have not completed their schooling.

The Softs, Cork and Silk, as well as the Kitting and Warehouse departments reflected a similar trend.

5.6. The Analysis of Section Three: Internal Environment

The analysis of section three addressed the prevalence of organisational support mechanisms for the induction of autonomous intrapreneurship and to test for FMSS’s organisational context with respect to structure, culture and strategy. This section of the questionnaire was structured using closed questions derived from The Pinchot and Company Innovation Climate Questionnaire (Pinchot & Pellman, 1999: 107-116) and measurement was based according to the 19 “freedom factors” outlined in Chapter three’s literature review.

<table>
<thead>
<tr>
<th>Q3.1.</th>
<th>Our organisations visions and strategies inspire me.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.430</td>
<td>4.00</td>
<td>4.00</td>
<td>1.066</td>
<td>-0.637</td>
</tr>
<tr>
<td>SD</td>
<td>D Neith A SA</td>
<td></td>
<td>6%</td>
<td>13%</td>
<td>24%</td>
<td>44%</td>
</tr>
</tbody>
</table>

Table 5.9: Measurement of vision and strategy

Question 3.1 measures the extent to which the respondents are empowered by clear strategic direction, so that their intrapreneurial efforts are effectively directed towards the organisational goals. From Table 5.9, the negative coefficient of skewness indicated, showed that 44 per cent of the sample agreed and 12 per cent strongly agreed with the statement. The mean, at 3.43 on a five-point scale, implies that the agreement is average.
Table 5.10: Tolerance of mistakes and failures

<table>
<thead>
<tr>
<th>Q3.2</th>
<th>People who make mistakes are encouraged to share them widely so that others can learn.</th>
<th>Mean Median Mode Std. Dev Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.580 4 4 1.164 -0.642</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SD</th>
<th>D</th>
<th>Neither</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>6%</td>
<td>16%</td>
<td>14%</td>
<td>42%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Question 3.2 has 42 per cent of the sample agreeing with the statement and a further 22 per cent indicating strong agreement. The negative skewness coefficient from Table 5.10 correlated with this agreement. This statement tested whether the internal environment at FMSS tolerated mistakes and failures, so those employees experimenting with new ideas would not be inhibited from doing so.

Table 5.11: Response to and support of intrapreneurs

<table>
<thead>
<tr>
<th>Q3.3</th>
<th>Even after many successes, the first failure at FMSS means that your career is over.</th>
<th>Mean Median Mode Std. Dev Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2.234 2 2 1.081 0.763</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SD</th>
<th>D</th>
<th>Neither</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>27%</td>
<td>39%</td>
<td>19%</td>
<td>10%</td>
<td>4%</td>
</tr>
</tbody>
</table>

Table 5.11 summarises the nature of the perceived support provided by FMSS for the intrapreneurial ventures within the organisation as tested by question 3.3. The positive coefficient of skewness indicates that most respondents disagreed (39 per cent) or strongly disagreed (27 per cent) with the statement. A further 19 per cent were undecided. The average, indicated by a mean measurement of 2.2 on a five-point scale is low, with a positive coefficient of skewness indicating disagreement with the statement.
Table 5.12: Measurement of managers who support innovation

<table>
<thead>
<tr>
<th>Q3.4</th>
<th>FMSS's managers have the skills to sponsor new idea creation and implementation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.429</td>
</tr>
<tr>
<td>Med-</td>
<td>ian</td>
</tr>
<tr>
<td>Mode</td>
<td>4</td>
</tr>
<tr>
<td>Std. Dev</td>
<td>1.111</td>
</tr>
<tr>
<td>Skew- ness</td>
<td>-0.631</td>
</tr>
<tr>
<td>SD</td>
<td>D</td>
</tr>
<tr>
<td>7%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Forty-six per cent of the respondents agree that the managers at FMSS have the skills and power to support and find resources for the innovation project and the project team. This agreement can be seen from the negative skewness factor in Table 5.12. A further 19 per cent of the sample was ambivalent while another 15 per cent disagreed with the statement.

Table 5.13: Measurement of cross-functional team empowerment

<table>
<thead>
<tr>
<th>Q3.5</th>
<th>FMSS uses cross-functional teams well.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>3.224</td>
</tr>
<tr>
<td>Med-</td>
<td>ian</td>
</tr>
<tr>
<td>Mode</td>
<td>4</td>
</tr>
<tr>
<td>Std. Dev</td>
<td>1.092</td>
</tr>
<tr>
<td>Skew- ness</td>
<td>-0.376</td>
</tr>
<tr>
<td>SD</td>
<td>D</td>
</tr>
<tr>
<td>6%</td>
<td>26%</td>
</tr>
</tbody>
</table>

The creation of empowered multi-disciplinary cross-functional teams is a characteristic of an innovative organisation (Pinchot & Pellman, 1999:109). The high frequency percentage scores in both disagreement and agreement categories (26 and 45 per cent respectively) indicate a degree of ambiguity surrounding the perceptions of the respondents with regards to the effective use of cross-functional teams at FMSS. Although the negative skewness factor and the median (at a score of four) shown in Table 5.13, both indicate that the tendency of the respondents perceptions are in the agreement category, there is a high percentage of uncertainty, at 16 per cent.
Table 5.14: Measurement of autonomous intrapreneurial decision-making

<table>
<thead>
<tr>
<th>Q3.6</th>
<th>My team and I are encouraged to take action or gather information to make our own decisions.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>3.377</td>
<td>4</td>
</tr>
<tr>
<td>SD</td>
<td>D</td>
</tr>
<tr>
<td>9%</td>
<td>19%</td>
</tr>
</tbody>
</table>

This measurement garnered a high percentage for the percentage of respondents who agreed with the statement as can be seen from Table 5.14. This statement measured the degree to which intrapreneurs are encouraged to own and account for the decision-making processes within the scope of their intrapreneurial ventures. Pinchot and Pellman (1999:109) believe that there is a direct correlation between organisational innovation excellence and the scope of autonomous decision-making empowerment. The median and mode, at a factor of four are high, while the average of 3.377 and the negative skewness factor are all indicators that teams are somewhat encouraged to take autonomous action.

Table 5.15: Measurement of exploratory freedom and discretionary time

<table>
<thead>
<tr>
<th>Q3.7</th>
<th>I am allowed no time at work to use to explore new business ideas for the company.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>2.862</td>
<td>3</td>
</tr>
<tr>
<td>SD</td>
<td>D</td>
</tr>
<tr>
<td>9%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Table 5.15 shows a positive coefficient of skewness. This indicates a high rate of disagreement with the statement, directly aligning with the mode of two. Thirty-five per cent of the respondents thought that they were allowed a certain amount of time to explore new potential innovation opportunities. Another 25 per cent of the sample were ambivalent and a further 22 per cent were of the opinion that they were allowed no discretionary time to explore innovation opportunities.
### Table 5.16: Measurement of future focus

<table>
<thead>
<tr>
<th>Q3.8</th>
<th>When talking with my boss, his/her attention is often concentrated on the future (next 5 to 25 years).</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.500</td>
<td>4</td>
<td>4</td>
<td>1.095</td>
<td>-0.721</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SD</th>
<th>D</th>
<th>Neither</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>6%</td>
<td>16%</td>
<td>14%</td>
<td>50%</td>
<td>14%</td>
</tr>
</tbody>
</table>

According to Pinchot and Pellman (1999: 110), innovation occurs when employees are focused on the future. The median and mode of four and the negative coefficient of skewness all correlate to the high frequency percentage, consisting of 50 per cent of the sample. A further 14 per cent strongly agree that the leadership focus at FMSS is on the future as indicated in Table 5.16.

### Table 5.17: Measurement of autonomous selection

<table>
<thead>
<tr>
<th>Q3.9</th>
<th>Most people leading innovation projects are appointed without much concern for whether they are passionate about the ideas.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.230</td>
<td>3</td>
<td>4</td>
<td>1.099</td>
<td>-0.203</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SD</th>
<th>D</th>
<th>Neither</th>
<th>A</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>5%</td>
<td>25%</td>
<td>23%</td>
<td>36%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Question 3.9 measured the methods in which team members are appointed to a task or project. As per the literature review in Chapter three, intrapreneurs must be self-appointed. The mean and median indicated an ambiguous response to this statement, with 25, 23 and 36 per cent of the respondents disagreeing, neither agreeing nor disagreeing or agreeing, respectively. The standard deviation in Table 5.17 indicated a score of almost one (1.099).

Question 3.10 served as a check question to additionally test reliability against question 2.9. Comparisons of the descriptive statistics between the two questions are summarised in Table 5.18. While the average between the two differed by 0.41, the median and mode matched exactly. The standard
deviations were both close to one, but occurred on either side of the slope. The coefficients of skewness were both negative.

**Table 5.18: Check question comparison with Q2.9**

<table>
<thead>
<tr>
<th>Question</th>
<th>Statement</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3.10</td>
<td>There are people at work who can assist me in trying out new ideas.</td>
<td>3.770</td>
<td>4.00</td>
<td>4.00</td>
<td>0.921</td>
<td>-1.097</td>
</tr>
<tr>
<td>Q2.9</td>
<td>I have a network of friends at work, which I can rely on, to help me in trying out new ideas.</td>
<td>3.360</td>
<td>4.00</td>
<td>4.00</td>
<td>1.199</td>
<td>-0.504</td>
</tr>
</tbody>
</table>

**Table 5.19: Measurement of full project ownership**

<table>
<thead>
<tr>
<th>Question</th>
<th>Statement</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q3.11</td>
<td>FMSS allows teams to manage the projects they have created from the beginning till full implementation.</td>
<td>3.543</td>
<td>4</td>
<td>4</td>
<td>0.945</td>
<td>-0.786</td>
</tr>
</tbody>
</table>

SD D Neither A SA

|            | 3%   | 11%  | 23%  | 52%  | 10%    |

Full project ownership is where the project success is directly attributed to the resulting knowledge generation and the passion an intrapreneur has for the project (Pinchot & Pellman, 1999:111). Table 5.19 presents the statistical results of the measurement for the prevalence of this phenomenon occurring at FMSS. The negative skewness coefficient and the 52 per cent agreement from the sample mean that the incidences of project re-assignments were not perceived as being high within FMSS. There is a 23 per cent frequency percentage indicating that a quarter of the sample was unsure as to whether this was occurring.

Question 3.12 tested and measured the lengths to which intrapreneurs will go, to obtain resources and support in attempts to bring about innovation projects. Most of the respondents, as can be seen from Table 5.20 believed that they were supportive of those colleagues requiring assistance, with 52 per cent
agreeing and 35 per cent strongly agreeing with the statement. The mean, median and mode measured four, with a negative coefficient of skewness.

Table 5.20: Measurement of boundary crossing

<table>
<thead>
<tr>
<th>Q3.12</th>
<th>I always try to help co-workers outside of my work area, even though this is not part of my job.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4.131</td>
<td>4</td>
<td>4</td>
<td>0.890</td>
<td>-1.398</td>
</tr>
<tr>
<td>SD</td>
<td>D</td>
<td></td>
<td>Neither</td>
<td>A</td>
<td>SA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>2%</td>
<td>6%</td>
<td>5%</td>
<td>52%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Forty-two per cent of the sample felt that there was a sense of community within FMSS. Table 5.21 reflects a mode of four, which infers that most respondents agreed or strongly agreed with the statement. The average at 3.5 is low and although the negative skewness factor indicates that the rating score was biased toward the upper ratings on the five-point scale, a quarter of the sample was unsure of how to respond to this question.

Table 5.21: Measurement of organisational community

<table>
<thead>
<tr>
<th>Q3.13</th>
<th>People feel a strong desire to make contributions to FMSS and to the people in it.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.520</td>
<td>4</td>
<td>4</td>
<td>1.027</td>
<td>-0.505</td>
</tr>
<tr>
<td>SD</td>
<td>D</td>
<td></td>
<td>Neither</td>
<td>A</td>
<td>SA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3%</td>
<td>14%</td>
<td>25%</td>
<td>42%</td>
<td>15%</td>
</tr>
</tbody>
</table>

Innovation is strongly driven by the focus on how to serve one’s customers better while inwardly focused organisations are not able to drive innovation and new idea generation (Pinchot & Pellman, 1999: 113). This factor was measured in the statement of question 3.14 and the statistical results presented in Table 5.22 below. The mode of four indicates that the majority (43 per cent) of the respondents agreed with the statement, while 24 per cent of the sample was
unsure as to how to respond to the statement. The standard deviation is almost at a score of one, with the mean, median and mode at similar scores of four, presenting a normally shaped frequency distribution curve.

Table 5.22: Measurement of customer centricity

<table>
<thead>
<tr>
<th>Q3.14</th>
<th>FMSS's decision-making processes focus more on understanding and serving customers than on internal politics.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.636</td>
<td>4</td>
<td>4</td>
<td>0.994</td>
<td>-0.544</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>2%</td>
<td>12%</td>
<td>24%</td>
<td>43%</td>
<td>18%</td>
</tr>
</tbody>
</table>

The measurement of internal supplier selection yielded ambiguous results. The negative coefficient of skewness as well as a mode of four as indicated in Table 5.23 did not reflect the ambivalence shown in the frequency distribution percentages. Twenty-six per cent of the sample disagreed with the statement, while 25 per cent indicated uncertainty and 32 per cent agreed. Innovative organisations will provide a multitude of options and service providers to enable and empower intrapreneurs. In doing so innovation is assured and made difficult to prevent.

Table 5.23: Measurement of internal supplier selection

<table>
<thead>
<tr>
<th>Q3.15</th>
<th>We are forced to use internal services at FMSS, even though they may not be the best available.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.157</td>
<td>3</td>
<td>4</td>
<td>1.121</td>
<td>-0.113</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>6%</td>
<td>26%</td>
<td>25%</td>
<td>32%</td>
<td>11%</td>
</tr>
</tbody>
</table>

Pinchot and Pellman (1999:114) maintain that innovative organisations encourage the rate of innovation through correct structuring of the measurements of innovation. The mean of 3.2 was low, as was the tendency of the coefficient of skewness toward a positive score. The frequency distribution percentages at 21, 34 and 36 per cent of the sample disagreeing, uncertain or
agreeing, respectively with question 3.16, reflected this ambiguity amongst the respondents.

**Table 5.24: Innovation Measurement**

<table>
<thead>
<tr>
<th>Q3.16</th>
<th>FMSS encourages innovation by measuring the rate of innovation.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.201</td>
<td>3</td>
<td>4</td>
<td>0.937</td>
<td>-0.200</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>3%</td>
<td>21%</td>
<td>34%</td>
<td>36%</td>
<td>6%</td>
</tr>
</tbody>
</table>

Information is a powerful tool used to enable innovation and the effective sharing of information is essential to the success of intrapreneurship (Pinchot & Pellman, 1999: 114). A negative skewness factor in Table 5.25 indicated that 38 per cent of the sample agreed with the statement and 13 per cent strongly agreed. A further 21 per cent did not feel that information was freely shared at FMSS while 18 per cent were uncertain. This uncertainty and disagreement represents a high proportion of the sample and must be seen as a barrier to effective innovation at FMSS.

**Table 5.25: Measurement of Information Sharing**

<table>
<thead>
<tr>
<th>Q3.17</th>
<th>We share information about technology freely across all departments and levels at FMSS.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.251</td>
<td>4</td>
<td>4</td>
<td>1.196</td>
<td>-0.355</td>
</tr>
<tr>
<td>SD</td>
<td></td>
<td>9%</td>
<td>21%</td>
<td>18%</td>
<td>38%</td>
<td>13%</td>
</tr>
</tbody>
</table>

A mean of 3.3 indicated in Table 5.26 shows that the sample perceived the respect garnered by employees at FMSS as being somewhat practised but not wholly, and this is reflected in the negative coefficient of skewness. A high proportion of respondents (21 per cent) disagreed with question 3.18 and a further 16 per cent could not decide what their perceptions were regarding the practising of respect for colleagues. The coefficient of skewness is negative,
with 39 per cent of the sample having agreed with question 3.18. The good treatment of employees is essential to establishing a source of unique competitive advantage.

Table 5.26: Measurement of employee centricity

<table>
<thead>
<tr>
<th>Q3.18</th>
<th>FMSS embodies a real respect for others, even when they are of lower status at work.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.322</td>
<td>4</td>
<td>4</td>
<td>1.207</td>
<td>-0.383</td>
</tr>
<tr>
<td>SD</td>
<td>D</td>
<td>8%</td>
<td>22%</td>
<td>16%</td>
<td>39%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Question 3.19 measures the extent to which organisations are sensitive to the external environments in which they operate. This externalised sensitivity leads to organisational agility (Pinchot & Pellman, 1999:115). A large negative skewness coefficient and a score of four for mean, median and mode means that the frequency distribution curve for question 3.19 is symmetrical with a sharp tendency towards the high end of the five-point scale. Fifty-six per cent and 28 per cent of the sample agree and strongly agree with this question, respectively.

Table 5.27: Measurement of social and environmental centricity

<table>
<thead>
<tr>
<th>Q3.19</th>
<th>When making decisions, we take social and environmental issues very seriously.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3.989</td>
<td>4</td>
<td>4</td>
<td>0.974</td>
<td>-1.536</td>
</tr>
<tr>
<td>SD</td>
<td>D</td>
<td>5%</td>
<td>3%</td>
<td>8%</td>
<td>56%</td>
<td>28%</td>
</tr>
</tbody>
</table>

Table 5.28 tested the organisational acceptance of smaller innovation projects as a growth platform for larger potential innovations. A quarter of the sample were uncertain while 51 per cent agreed that FMSS focused on the larger projects, risking expensive failures and forgoing smaller more viable innovation opportunities. The negative skewness factor reflected this perception. Only 9
per cent of the sample disagreed with the statement. In the case of question 3.20, a positive skewness factor was desirable.

Table 5.28: Measurement of innovation project viability

<table>
<thead>
<tr>
<th>Q3.20</th>
<th>Innovation is managed centrally to make sure that we invest only in things with the highest potential.</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>3.655</td>
<td>4</td>
<td>4</td>
<td>0.904</td>
<td>-0.734</td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>2%</td>
<td>9%</td>
<td>24%</td>
<td>51%</td>
<td>14%</td>
<td></td>
</tr>
</tbody>
</table>

5.7. The Analysis of Section Four: External Environment

The analysis of section four addressed the subproblem specific to external environmental elements conducive to the induction of autonomous intrapreneurship. This analysis was based largely on Chapter three’s literature review which outlined the premise that higher levels of market uncertainties, increased and varied customer demands all served to precipitate the induction of autonomous intrapreneurship in dynamic and continuously changing environments. This section therefore tested and measured the way in which employees at FMSS perceived the external environment in which the organisation operates.

The first three questions from section four are represented in Table 5.29, below:
Table 5.29: Assessment of external environmental perceptions

<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
<th>Mean</th>
<th>Median</th>
<th>Mode</th>
<th>Std. Dev</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4.1</td>
<td>FMSS has no need to continuously generate new ideas because the customer does not demand different products.</td>
<td>2.330</td>
<td>2</td>
<td>2</td>
<td>1.170</td>
<td>0.705</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>D</td>
<td>Neith</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>26%</td>
<td>41%</td>
<td>13%</td>
<td>16%</td>
<td>5%</td>
</tr>
<tr>
<td>Q4.2</td>
<td>FMSS is faced with competitors who continuously offer increased levels of competition.</td>
<td>4.167</td>
<td>4</td>
<td>4</td>
<td>0.874</td>
<td>-1.435</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>D</td>
<td>Neith</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2%</td>
<td>5%</td>
<td>5%</td>
<td>51%</td>
<td>37%</td>
</tr>
<tr>
<td>Q4.3</td>
<td>FMSS supplies to different markets with different customer wants.</td>
<td>4.244</td>
<td>4</td>
<td>4</td>
<td>0.639</td>
<td>-0.672</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SD</td>
<td>D</td>
<td>Neith</td>
<td>A</td>
<td>SA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0%</td>
<td>2%</td>
<td>6%</td>
<td>59%</td>
<td>34%</td>
</tr>
</tbody>
</table>

The statements from this section elicited a response that clearly indicated that the organisation was perceived to be operating within a dynamic, heterogeneous environment.

Question 4.1 was structured in a manner that would elicit a positive or a negative coefficient of skewness in the case of a dynamic environment or of a static environment, respectively. The positive coefficient of skewness in the case of this question and the low average rating indicates that a large portion of the sample disagreed with the statement. Forty one per cent of respondents disagreed and 26 per cent strongly disagreed with this statement. The most common score as indicated by the mode was two.

The negative coefficient of skewness in questions 4.2 and 4.3 demonstrated that there was a high awareness of the heterogeneous demands placed on the organisation by virtue of the mix of customers and markets that FMSS operates in, demonstrated by the sample. Both questions returned frequency...
percentages in excess of 85 per cent from the “agree” and “strongly agree” categories, collectively. In both questions, the median and mode scores were four, with high averages in excess of four. This meant that the sample predominantly recognised that FMSS operated in dynamic, diverse markets with constantly changing customer demands. This situation is highly conducive to the stimulation of innovation behaviours.

Table 5.30: Open-ended question categorization

<table>
<thead>
<tr>
<th>Suggestion Category</th>
<th>1st Suggestion</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brainstorming, suggestion boxes &amp; focus</td>
<td>11%</td>
<td>20</td>
</tr>
<tr>
<td>Core Values</td>
<td>5%</td>
<td>9</td>
</tr>
<tr>
<td>Communication improvement</td>
<td>6%</td>
<td>11</td>
</tr>
<tr>
<td>Common vision</td>
<td>1%</td>
<td>2</td>
</tr>
<tr>
<td>Improved employee conditions</td>
<td>13%</td>
<td>22</td>
</tr>
<tr>
<td>Management and leadership styles</td>
<td>8%</td>
<td>14</td>
</tr>
<tr>
<td>Incentive scheme &amp; recognition</td>
<td>13%</td>
<td>22</td>
</tr>
<tr>
<td>Increased teamwork</td>
<td>4%</td>
<td>7</td>
</tr>
<tr>
<td>Ownership across all hierarchical levels</td>
<td>10%</td>
<td>17</td>
</tr>
<tr>
<td>Product innovation</td>
<td>5%</td>
<td>8</td>
</tr>
<tr>
<td>Corporate intervention</td>
<td>3%</td>
<td>5</td>
</tr>
</tbody>
</table>

Table 5.30 indicates the responses to the open-ended question 4.4, where the sample was asked to suggest ways to increase the rate of intrapreneurship at FMSS. Eleven categories were elicited; the highest of which were directly related to the well being of the employees. One of these top-scoring suggestions, at 13 per cent was the requirement of improved employee conditions, including the need for better training and more practically orientated workshops to increase knowledge development. The second high score, at 13 per cent, was the suggestion that employees be publicly recognised and lauded for their worthwhile contributions and monetary rewards are linked to the value of the contributions. The balance of the suggestion categories is graphically depicted in Figure 5.6.
The need for a larger tangible contribution by the employees is evident in the next top-scoring suggestion categories. A greater specific focus on brainstorming and suggestion boxes is perceived to be lacking by 11 per cent of the sample. A further ten per cent felt that the generation of better ownership and accountability equally amongst all employees would induce more innovation at FMSS.

5.8. Conclusion

This chapter served to document the results of the research study conducted in October 2006, at FMSS. The documentation of the results included the interpretation of the results using statistical calculations and the presentation of the results using both graphs and tables.

Section one of the questionnaire detailed the biographical characteristics of the sample, and this was compared with the existing FMSS employee population to indicate a degree of correlation between sample and total population.
Section two attempted to determine what proportion of the employee population displayed intrapreneurial behaviours and how these employees were distributed throughout the organisation. It was established that the greatest portion of employees exhibiting intrapreneurial traits as a percentage of the total population and expressed as a percentage of the total number of respondents were from the three production areas, namely: CHG, MLS and Heatshield; Softs, Cork and Silk; Kitting and Warehouse. The largest number of employees exhibiting intrapreneurial traits expressed as a percentage of that department was from the Product Development and Engineering department.

Section three of the questionnaire attempted to establish the barriers and enablers of autonomous intrapreneurship within FMSS. It was found that there existed a high degree of freedom which would allow for the induction of intrapreneurship, although improvement in team allocations, internal supplier selection, information sharing and looking for value thorough all projects, not merely those which might provide the largest returns.

Section four tested the way in which employees at FMSS perceived the external environment in which the organisation operates. It was unanimous that the organisation operated within a highly competitive, challenging and varied market. This section also included one open-ended question where employees felt that increased rewards, recognition, improved employee conditions and focus on practical training programs and brainstorming sessions would increase the rate of autonomous intrapreneurship.

The next and final chapter will focus on the conclusion and recommendations arising from the results of the empirical survey, with respect to the literature review, survey and the identified subproblems.
CHAPTER SIX
SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1. Introduction

This chapter will focus on summarising the results of the empirical survey, concluding and contextualising the literature review, literature survey and the identified subproblems and make recommendations for further research.

6.2. Summary and Discussion of Results relating to Individual Intrapreneurial Behaviour

The literature review outlined the importance of the natural behavioural tendencies of individuals in the success of establishing innovative advantage. The importance of locating, identifying and liberating the intrapreneurial employees within any organisation was highlighted. Those employees who were intrapreneurially inclined, had five specific core characteristics, identified by numerous authors (Hornsby et al, 1993:33; Pinchot, 1985:39; Timmons & Spinelli, 2004:251; Willax, 2004:13A; Yeung, 2005: 63) in the literature review (refer Figure 3.2):

- Internal locus of control;
- Need for autonomy;
- Drive for achievement;
- Determination and commitment;
- Risk tolerant.

These characteristics served as the basis for identifying and locating the intrapreneurs at FMSS. The intrapreneurs at FMSS were identified using Pinchot’s (1985:31) test. Based on the responses, the frequency percentage for eight of the twelve questions were above 40 per cent. This is a high rating, which bodes well for the organisation. This means that there are a large number of employees at the organisation currently, who are intrapreneurially inclined.
High ratings in the internal locus of control and determination and commitment categories indicate that the employees at FMSS have the will and self-belief necessary to effect the changes necessary in order to promote innovation advantage.

One of the low scoring categories related to that of the sample’s need for autonomy based on the lengths an intrapreneur will go, to turn his/her vision into a profitable reality, even flouting authority in order to do so.

This does not appear to be the case at FMSS. Employees who are intrapreneurially inclined will rather remain within demarcated boundaries and levels of authority than use independent initiatives to bring about innovation projects. FMSS management, in order to benefit from innovation projects, must clearly define a champion and introduce effective sponsors to serve as a path for facilitating autonomous innovation projects. These sponsors must have sufficient power to overcome any perceived authoritarian barriers to the process. This can be further facilitated and promoted by the plant manager who could undertake the role of “climate – maker”.

The second low scoring category was that relating to risk tolerance, where intrapreneurs are regarded by their peers as risk takers, but in fact are not. Intrapreneurs look for calculated moderate risks, but do everything possible to reduce this risk, to the extent of initially prototyping their innovation projects in order to do so (Pinchot, 1985:68), prior to sharing the project with others.

This mentality amongst the employees of FMSS is low. As per the case with the sample’s need for autonomy, it appears that the employees lack the organisational support mechanisms, which will enable and facilitate this process. This requirement must be established within the organisational cultural norms and EO that FMSS must adopt in order to stimulate autonomous intrapreneurship.

The last low scoring category related to that of internal drives and needs for achievement. The hallmark of a true intrapreneur is that the drive to turn his/her vision into a profitable reality is all encompassing. This need surpasses the
requirement of monetary compensation. The reward is the accomplishment of a goal, while the monetary measure is seen as a measurement of success – achievement motivation in action.

Many FMSS employees (40 per cent) could not foresee their sacrificing the thought of a monthly salary in favour of a successful intrapreneurial venture and the resultant rewards. Many employees had no problems regarding ownership of a project, specifically with regards to others trying to incompetently implement their ventures. This is in direct contrast to the notion presented by Timmons and Spinelli (2004:255) who maintain that the intrapreneur who is driven to achieve their vision believes that only personal intervention in the new venture can affect the end-result.

A detailed assessment of the employee population at FMSS is proposed, in order to identify those specific individuals who possesses these character traits is required. Additionally, a specific addition to the recruitment process at FMSS would enhance the organisation’s ability to innovate. The additional recruitment process would provide an enhanced source of competitive advantage due to the uniqueness, diversity and mix of people hired (Gomez, 1999:4). The suggested enhanced recruitment process must form part of FMSS’s EO strategy, and must be part of an effective reward and formal recognition system.

6.3. Summary and Discussion of Results relating to Organisational Influences on Intrapreneurial Behaviour

The organisational mechanism through which autonomous intrapreneurship can be stimulated is the internal environment, specifically culture, structure, resources and strategy.

The 19 freedom factors (Pinchot & Pellman, 1999: 107) provide a measurement which can influence the successful result of intrapreneuring, but are dependent on the organisational environment to provide the foundation for autonomous intrapreneurship to take place.
The first freedom factor of how the vision and strategy is diffused into the organisation was found to be inspiring among most of the respondents. There are still a number of respondents who felt misalignment or disconnected from the vision and strategies of FMSS. It is essential that a methodology be found to help these employees find a deeper value in the vision and in this way enable the connection with the vision and strategic direction. It is this deeper connection with the vision which will empower and liberate the intrapreneurs within FMSS (Pinchot & Pellman, 1999:118).

The freedom to explore and experiment and a high tolerance for mistakes at FMSS, are healthy. The sample reacted positively to the existing environmental conditions which are conducive to the employee trying new ideas without fear of reprisals. This factor was found by Eesley and Longnecker (2006:19) to be the top barrier to intrapreneurship in organisations. This supportive environment can be further enhanced and attract a broader cross-section of employees if the reward system were to be revolutionised, such as the provision of intracapital and the development of a free intraprise system (Pinchot & Pellman, 1999:122), as part of FMSS’s EO strategy, where employees can become and act as internal service providers, using earned intracapital to fund new ventures.

The sample also generally found the support of intrapreneurs and managers who sponsor intrapreneurs to be good and an enabler of intrapreneuring within the organisation. The sample indicated that the encouragement of independent information gathering and the requirement to take independent action based on this autonomy was high. To further encourage management sponsorship of intrapreneurship, FMSS should train all management and supervisory staff to be sponsors of innovation and so create a clearer smoother way forward for rapid innovation.

A high portion of the sample expressed uncertainty as to the effectiveness of FMSS’s use of cross-functional teams and the degree to which employees were allowed to self-select onto teams and projects. The sample felt that full project ownership was well developed, where projects were not removed from one team and transferred to another. The use of fully engaged, cross-functional teams and team members to ensure project viability and success is an
important component of innovation, where rigid hierarchies prevent the flow of information (Eesley & Longnecker, 2006: 19) or people appointed onto teams have no interest in the initiative. FMSS must incorporate more usage of cross-functional teams into more decision-making, even to the extent of allocating more organisational clout to these teams over that of traditional functional structures (Pinchot & Pellman, 1999: 123).

FMSS promotes a high sense of community. The sample responded favourably to the statements relating to assisting colleagues beyond the call of duty or scope of work and to assisting colleagues needing assistance in their innovation ventures. The creation of boundaryless organisations must be initiated, even if only through use of cross-functional teams at first, so that employees are comfortable and accustomed to the practice. Pinchot and Pellman (1999:130) maintain that innovation occurs mostly across organisational boundaries as the current structures are indicative of the current business methodologies, where no innovation is occurring.

The sample responded ambiguously with regards to stakeholder centricity. Respondents felt that internal politics played a large part in detracting from customer focus, while social and environmental centricity was highly rated. The degree of employee centricity was low. A refocus on customers, by exposing those employees who are not normally exposed to the wants and needs of customers, is required. The core values of the organisation must be permeated and practised and the message must be consistent, in treating employees well; the focus needs to move to how the work experience at FMSS can be made uplifting and exciting (Pinchot & Pellman, 1999: 139) to improve employee centricity.

The freedom of information flow at FMSS was regarded by the sample as average. There were indications from the sample that access and availability of information was lacking. Pinchot and Pellman (1999:137) maintain that accurate feedback mechanisms are the sign of a healthy organisation and that truth and transparency in empowering people to make good decisions are essential (Pinchot & Pellman, 1999:114). The core values must be used in this regard to
model a culture of ethics and transparency. Intolerance must extend to those who “guard information as a political resource” (Pinchot & Pellman, 1999: 137). Innovation measurement and project viability are important tools for tracking new innovations and improvements on current lines. Measurement of innovation is seen as a barrier to the effective innovation of projects that may have a longer pay-back period. There was a degree of ambiguity surrounding the result of this freedom factor. FMSS should incorporate a holistic approach to innovation projects through a comprehensive EO strategy, which includes the provision for the measurement of innovation, even as a means to an end – for the provision of rewards such as intracapital.

The provision of the abovementioned underlying freedom factors will directly influence the way in which the organisational elements of culture, structure, resources and strategy contribute towards laying the basis for autonomous intrapreneurship.

6.4. Summary and Discussion of Results relating to External Influences on Intrapreneurial Behaviour

Russell and Russell (1992:641) proposed the existence of a positive correlation between intrapreneurship and environmental uncertainty, mainly due to:

- Highly uncertain environments lead to more intrapreneurial behaviours in order to realign with the heterogeneous environment;
- High levels of innovation lead to the perception that the environment is dynamic.

The respondents all clearly identified that FMSS was operating within a hostile, heterogeneous, dynamic environment. This indicates a high level of awareness within all levels and departments, of the need to continuously and rapidly innovate to keep abreast or ahead of the competition.

The question remains as to the reason why the rate of innovation at FMSS is not taking place at a faster pace. The last open-ended question addressed this issue and it was found that most respondents felt that information flow in the
form of practical training opportunities or workshops and improved employee conditions were necessary to increase autonomous employee contributions towards innovation suggestions. Those who had a contribution to make felt that the effort was not worthwhile as there were inadequate reward or recognition schemes in place, or that there was no opportunity (suggestion schemes or brainstorming sessions) currently available to make the contribution.

Employees at FMSS also feel that the hierarchical levels are still barriers to the effective facilitation of communication, and the resultant disbursement of innovation ideas, as there is a disconnect between the employees of the organisation and the way in which they relate to the organisation, specifically with regards to ownership, accountability and a sense of belonging to FMSS. This disconnect is reflected by the frequency of the occurrence with which the management and leadership styles are raised as affecting the rate of innovation at FMSS.

6.5. The Entrepreneurial Orientation (EO) of FMSS

Entrepreneurial Orientation (EO) as defined by Dess and Lumpkin (2005:147) refers to the strategic initiatives that organisations use to identify and launch corporate ventures. It reflects the frame of reference apparent in organisations’ systems, culture and environment. One of the major traits of EO is the proactive search for new opportunities in times of high uncertainty (Mintzberg, 1973 cited by Dess & Lumpkin, 2005: 147).

The factors which Russell (1999:70) cites Burgelman and Sayres (1986) and Mintzberg (1983) that encapsulate EO and are recommended for use by FMSS in the strategy to facilitate the innovation advantage process are:

- To redesign the structures to support the autonomous generation of intrapreneurial activities – this should include cross-functional teams and more organismic, flatter hierarchical structures;
- To build on the existing culture at FMSS by practicing, promoting and implementing the core values of the organisation;
• To provide unambiguous direction for innovation so that independent efforts are aligned with the organisation’s goals;

• Ensuring that intrapreneurial activities are supported by the provision of the required resources.

The following are additions needed to be incorporated into the EO strategy recommended for adoption by FMSS:

• The support for intrapreneurial activities needs to incorporate an effective reward system, such as the provision of intracapital. Pinchot (1985:284-297) defines this concept as the corporate equivalent of individually owned capital, that can be used to fund new innovation projects and can take the form of discretionary budgets, sponsors, team members or exploratory time. A portion of profits generated from other successful innovation ventures could be used to fund the intracapital;

• The support for intrapreneurial activities needs to incorporate an effective recognition system, where not only successes but also failures are lauded. The mind-set approach on failures must be that failure implies a level of exploration, whereas no failure indicates “nothing”. As maintained by Peters (2003:199): “Reward excellent failures, punish mediocre successes”;

• Structural redesign must incorporate the adoption of a focused core innovation team to serve as promoters, sponsors and drivers of innovation and the EO strategy that needs to be introduced and sold to the employees.

The innovation process is characterised by non-linear, unpredictable change, where innovation occurs as a result of learning and the rapid flexibility to adapt as a result of this learning experience, rather than by design (Pinchot, 1985:16; Russell, 1999:68). The strategy for innovation and intrapreneuring will be one where the final result and the execution of the plan will be thus uncertain.
6.6. The Resolution of the Research Problem and Sub-problems

The main problem statement was identified as follows:

The identification of the intrapreneurs at FMSS to assess the success of the current organisational contexts and environmental elements in stimulating autonomous intrapreneurship, for sustained organisational renewal.

The main problem statement was sub-divided into smaller sub-problems to facilitate the resolution of the main problem statement. The sub-problems were identified as follows:

- What is covered by the literature in terms of intrapreneurial characteristics, the best methodology for inducing autonomous behaviour and the organisational and environmental support mechanisms required to encourage this autonomy?

This sub-problem was addressed and resolved in Chapter three’s literature review.

- What proportion of the employees at FMSS display intrapreneurial traits and how are these employees distributed throughout the organisation?

This sub-problem was addressed in conducting the research survey. The sub-problem was resolved during the analysis of the survey results in Chapter five.

- What organisational support mechanisms for the induction of autonomous intrapreneurship, are in place?

This sub-problem was addressed in conducting the research survey. The sub-problem was resolved during the analysis of the survey results in Chapter five.

- What external environmental elements are conducive to the induction of autonomous intrapreneurship?
This sub-problem was addressed in conducting the research survey. The sub-problem was resolved during the analysis of the survey results in Chapter five.

6.7. The Accomplishment of the Research Objectives

The objectives of this study were to:

- Determine the percentage, composition and distribution of the intrapreneurs at FMSS;
- Determine the cultural and environmental barriers and enablers of intrapreneurship at FMSS;
- Determine methods for stimulating or increasing intrapreneurial activity at FMSS;
- Present the results and recommendations of this study to FMSS employees with suggested implementation plans.

All of the first three objectives were accomplished through the research survey conducted at FMSS in October 2006.

The last objective, which is to present the findings and recommendations to the FMSS management team and employees will be finalised upon the acceptance of this research treatise for publication.

6.8. Recommendations for further research

A phenomenologist philosophy with regards to the thoughts, perceptions and feelings of the individuals would be regarded as beyond the scope of this study, and would best be served through an explanatory study, as recommended from Chapter four’s overview.
6.9. Conclusion

The importance of alternative sources of competitive and innovation advantage for the automotive industry in South Africa can be seen from Chapter two’s sector overview, resulting from the unique challenges due to the impact of increased globalisation and the open-markets in the post-apartheid era.

For firms such as FMSS, competing in this dynamic, hostile and heterogeneous environment, the diversity and agility of this small company is being negated by the impact of the larger parent corporation, FM, to which it belongs. Specifically, the identified internal organisational barriers need to be revised so that they provide an effective gateway to stimulate autonomous intrapreneurship. These factors present enormous challenges for FMSS’s on-going success, viability and lifespan.

The adoption of a new EO strategy, with a cross-functional team-based approach, would serve to promote and sustain the vital role the intrapreneurs at FMSS have to play in benefiting from any innovation advantages. The internal and external environments only provide the opportunities to innovate. The onus is still on the individual to avail himself of this opportunity, and in this way, embark on the intrapreneurial process.
REFERENCE LIST


Whitehead, G. 2000. *The Use of Information Technology and Aspects of Electronic Commerce, as Primary Tools For Enhancing the Effectiveness of Federal Mogul SA’s Supply Chain*. Port Elizabeth: University of Wales (Administered by the Port Elizabeth Technikon), MBA Unit.


FAO: Barry Easton  
Human Resources Manager - Federal Mogul Sealing Systems SA  
CC: Gerald Whitehead  
Plant Manager - Federal Mogul Sealing Systems SA  

RE: Request for Physical Access to conduct internal research at FMSS SA  

Your assistance in providing access to the sample for a study towards a MBA dissertation on intrapreneurship will be greatly appreciated. The study is tentatively titled: “An Investigation into the Stimulation of Innovation Advantage through Autonomous Intrapreneurship at Federal Mogul Sealing Systems”. This degree is attached to the Business School at the Nelson Mandela Metropolitan University (NMMU) in Port Elizabeth.  

It has been widely postulated that the stagnation of innovation in organizations are the results of systems of analysis and control. When innovation is called for, very little happens, mainly because of the difficulties that employees are having in implementing them. This could be largely due to two reasons: these ideas are blocked or potential innovators are leaving to become intrapreneurs in other companies (sometimes even competitors) or to become independent entrepreneurs. This research could be valuable in determining the prevalence of intrapreneurs and the climate for encouraging innovation at FMSS.  

A copy of the questionnaire is attached and will be administered using the on-site Training Room, over a period of not more than 2 days.  

Should you require further information, please do not hesitate to contact me. Thank you in advance for your assistance.  

----------------------  
Beverley Morgan            Margaret Cullen  
MBA Student                Promoter  
0844041833                NMMU Business School  
Margaret.Cullen@nmmu.ac.za
Appendix 4.2

NMMU Business School
MBA Unit
Port Elizabeth
October 2006

Dear Participant

This questionnaire is designed to study aspects of life at work, specifically Intrapreneurship. Intrapreneurship involves the generation or creation of ideas and the translation of these ideas into viable business opportunities for the organisation.

The information you provide will help us better understand the quality of our work life. Because you are the one who can give us a correct picture of how you experience your work life, I request you to please respond to the questions frankly and honestly.

Your response will be kept strictly confidential. Only members of the research team will have access to the information you give. In order to ensure the utmost privacy, I have provided an identification number for each participant. This number will only be used by us for follow-up procedures. The numbers, names or the completed questionnaires will not be made available to anyone other than the research team. A summary of the results will be made available once the research has been approved by the NMMU Business School.

Participating in this research is entirely voluntary and you have the right not to participate or to withdraw from this study at any point in time. I urge you to please answer ALL questions and not leave any questions unanswered.
### Section 1 – Biographical Details

<table>
<thead>
<tr>
<th>1.1 My age is between:</th>
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<tr>
<td>18 to 24</td>
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<td>25 to 29</td>
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<td>30 to 39</td>
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<td>40 to 49</td>
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<td>50 and older</td>
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<tr>
<th>1.2 My Gender is:</th>
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| Female | (1)  
| Male | (2)  

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<th>1.3 My ethnic group is:</th>
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| Black | (1)  
| Coloured | (2)  
| Indian | (3)  
| White | (4)  
| Other - please specify | (5)  

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<th>1.4 My highest education level is:</th>
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</table>
| Grade 11 / Standard 9 and below | (1)  
| Matric | (2)  
| M+3 (eg Technikon Diploma) | (3)  
| M+4 (eg Bachelors Degree) | (4)  
| Other – please specify | (5)  

<table>
<thead>
<tr>
<th>1.5 I have worked at FMSS for the time period:</th>
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</table>
| less than 12 months | (1)  
| 1 to 3 years | (2)  
| 4 to 5 years | (3)  
| 6 to 9 years | (4)  
| 10 or more years | (5)  

<table>
<thead>
<tr>
<th>1.6 I work in the following department at FMSS (mark 1 dept only):</th>
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</table>
| Softs & Cork & Silk Production | (1)  
| CHG & MLS & Heatshields Production | (2)  
| Kitting & Warehouse | (3)  
| Receiving, Despatch & Logistics | (4)  
| Toolroom, Maintenance & Quality | (5)  
| Finance, Sales & Administration | (6)  
| Product Development and Engineering | (7)  
| Other – please specify | (8)  

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1. Cross-functional teams – teams consisting of people from different departments in the company working together instead of individually
2. Innovation – the creation of value for the company through new ideas
## Section 2 – Individual Traits

<table>
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<tr>
<th></th>
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<th>Neither Agree nor Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
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<tr>
<td>2.1.</td>
<td>My need to improve things takes up more of my time than keeping things the way they are.</td>
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<td>2.2.</td>
<td>I am excited about what I do at work.</td>
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<td>2.3.</td>
<td>I think about new business ideas while doing mundane things, like travelling to work.</td>
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<td>2.4.</td>
<td>I can see the action steps needed when I think of ways to make new ideas happen.</td>
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<td>2.5.</td>
<td>I often get into trouble at work because I try new things that exceed my authority.</td>
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<td>2.6.</td>
<td>I am able to keep my ideas to myself until I have tried them out.</td>
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<td>2.7.</td>
<td>I have kept working on new ideas even though it seemed at times as if I might fail.</td>
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<td>2.8.</td>
<td>I have both fans and critics of my ideas.</td>
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<td>2.9.</td>
<td>I have a network of friends at work, who I can rely on to help me in trying out new ideas.</td>
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<td>2.10.</td>
<td>I get easily upset by others’ incompetent attempts to try out parts of my ideas.</td>
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<td>2.11.</td>
<td>When trying out my own ideas, I think that I can overcome my need to want to do all the work myself, and share the work in a team.</td>
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<td>2.12.</td>
<td>I would be willing to give up a salary, if the rewards for successful implementation of my new business ideas were enough.</td>
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## Section 3 – Internal Environment

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<th>Neither Agree nor Disagree</th>
<th>Agree</th>
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<tbody>
<tr>
<td>3.1.</td>
<td>Our organisation’s visions and strategies inspire me.</td>
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<td>3.2.</td>
<td>People who make mistakes are encouraged to share them widely so that others can learn.</td>
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1. Cross-functional teams – teams consisting of people from different departments in the company working together instead of individually
2. Innovation – the creation of value for the company through new ideas
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<th>Section 3 – Internal Environment</th>
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<td></td>
<td>Strongly Disagree</td>
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<td>Neither Agree nor Disagree</td>
<td>Agree</td>
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<td>3.3.</td>
<td>Even after many successes, the first failure at FMSS means that your career is over.</td>
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<td>3.4.</td>
<td>FMSS’s managers have the skills to sponsor new idea creation and implementation.</td>
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<td>3.5.</td>
<td>FMSS uses cross-functional teams(^1) well.</td>
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<tr>
<td>3.6.</td>
<td>My team and I are encouraged to take action or gather information to make our own decisions.</td>
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<td>3.7.</td>
<td>I am allowed no time at work to use to explore new business ideas for the company.</td>
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<td>3.8.</td>
<td>When talking with my boss, his/her attention is often concentrated on the future (next 5 to 25 years).</td>
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<td>3.9.</td>
<td>Most people leading innovation(^2) projects are appointed without much concern for whether they are passionate about the ideas.</td>
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<td>3.10.</td>
<td>There are people at work who can assist me in trying out new ideas.</td>
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<td>3.11.</td>
<td>FMSS allows teams to manage the projects they have created from the beginning till full implementation.</td>
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<td>3.12.</td>
<td>I always try to help co-workers outside of my work area, even though this is not part of my job.</td>
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<td>3.13.</td>
<td>People feel a strong desire to make contributions to FMSS and to the people in it.</td>
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<td>3.14.</td>
<td>FMSS’s decision-making processes focus more on understanding and serving customers than on internal politics.</td>
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<td>3.15.</td>
<td>We are forced to use internal services at FMSS, even though they may not be the best available.</td>
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1. Cross-functional teams – teams consisting of people from different departments in the company working together instead of individually
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### Section 3 – Internal Environment

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<td><strong>3.16.</strong></td>
<td>FMSS encourages innovation by measuring the rate of innovation.</td>
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<td><strong>3.17.</strong></td>
<td>We share information about technology freely across all departments and levels at FMSS.</td>
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<td><strong>3.18.</strong></td>
<td>FMSS embodies a real respect for others, even when they are of lower status at work.</td>
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<td><strong>3.19.</strong></td>
<td>When making decisions, we take social and environmental issues very seriously.</td>
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<td><strong>3.20.</strong></td>
<td>Innovation is managed centrally to make sure that we invest only in things with the highest potential.</td>
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### Section 4 – External Environment

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<tr>
<td><strong>4.1.</strong></td>
<td>FMSS has no need to continuously generate new ideas because the customer does not demand different products.</td>
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<tr>
<td><strong>4.2.</strong></td>
<td>FMSS is faced with competitors who continuously offer increased levels of competition.</td>
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<td><strong>4.3.</strong></td>
<td>FMSS supplies to different markets with different customer wants.</td>
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<td><strong>4.4.</strong></td>
<td>Name one way in which the rate of creating new ideas (innovation) at FMSS can be increased.</td>
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</table>

**THANK YOU FOR YOUR TIME!**

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