

## Chapter 6

### Research Methodology

*We are not alone in creating meaning of our lives, for our lives are created in the spaces between others, and us as well as in our relationships to physical reality.*

*Pinchot and Pinchot 2000:2*

#### 6.1 Introduction

The chapter describes the research methodology, which comprises data collection, the sampling method and the measurement instrument. The instrument is discussed in detail, showing what was measured and how it was measured (the scales used). The instrument comprises three sections, namely, strategic planning; entrepreneurial orientation; and performance.

The hypotheses that were advanced earlier on in the first chapter are now being tested to assess and confirm or disapprove the relationships proposed among the constructs. Details of how the research was carried out are presented stage by stage. The problems encountered in the research are also stated.

#### 6.2 Methodology

This is a scientific study which is grounded in the inference process. The process is used in the development and testing of various propositions largely through the double movement of reflective thinking (Cooper and Schindler 2001:53). While concepts and constructs have been used in the theoretical presentation, variables will be used at the empirical stage of the study because according to Cooper and Schindler (2001:53) they accept numerals and values for the purpose of testing and measurement. They may be classified as exploratory (independent, dependant or moderating) extraneous and intervening.

A total of 14 propositions were advanced for testing. A hypothesis describes the relationship between or among variables. The advanced hypothesis are believed to be good in that they meet the criteria noted by Cooper and Schindler (2001:53), in that they explain what they

claim to explain, are testable, have greater range, probability and simplicity than its rivals where thinking and methods are based on concepts and constructs.

This “proposition” method was considered the most appropriate method given the task at hand. Alternative methods such as the laboratory / experimental approach in which subjects are studied under controlled conditions were not considered suitable.

This is an empirical research study in which primary data is sourced. The research aims to establish a relationship between the practice of strategic planning and the practice of entrepreneurship in large businesses in South Africa. It intends to establish the following:

- Presence or absence of strategic planning and corporate entrepreneurship, and the extent to which businesses practise planning and entrepreneurship.
- Whether businesses that practise strategic planning also practice corporate entrepreneurship
- Whether businesses that practise either strategic planning or entrepreneurship or both are of the opinion that the practise leads to improved performance.

This is an ex-post-facto design in which the researcher has no control or influence over the variables. The researcher is limited to holding factors constant by a judicious selection of subjects according to strict sampling procedures and by manipulation of findings (Cooper & Schindler 2001:136).

Additional characteristics of the methods used are as follows:

- Data collection method: Interrogation (interviews).
- Time dimension: Cross-sectional.
- Research environment: Field setting.
- Topical scope: A descriptive statistical study in which the population’s characteristics are captured from a sample’s characteristics and the hypothesis tested quantitatively.

## **6.2.1 Data collection**

### **6.2.1.1 Instrument and measurement**

A questionnaire is the main tool which was used to collect primary data. The questionnaire is constructed in a user-friendly way. It is expressed in simple business language which

managers of large businesses are able to relate to. Though there are two different constructs, a single questionnaire with two sections was used for easy completion.

The questionnaire is designed to comprise (3) three sections and generates the following data:

First section (**strategic planning**)

- Internal capability
- Past performance
- External orientation
- Departmental cooperation
- Management time involvement
- Employee time involvement
- Use of planning techniques
- Staff creativity in planning
- Focus on control

Second section (**entrepreneurial orientation**)

- Business orientation
- New product / service introduction
- New process introduction
- Key business behavioural dimensions
- Performance measurement

Third section (**financial performance**)

- Return on investments (ROI),
- Return on equity (ROE)
- Sales turnover ratio (STO)
- Net profit after tax (NPAT)
- The present value (PV)

In addition to these sections there is also a section which consists of the characteristics of the businesses in terms of (a) turnover (b) number of employees (c) gross asset value (d) age of business (e) business listing (f) age of listing. These are the **independent** variables

The full sub-sectors of section 1 and section 2 are supplied below as Tables 6.1 and 6.2 respectively. A sample questionnaire is attached as Annexure 1. The questionnaire was

developed from elements of both Tables 6.1 and Table 6.2 and the third section (financial performance). The research / instrument uses two constructs, namely strategic planning and corporate entrepreneurship and these are discussed below in detail.

**Table 6.1 Planning system characteristics**

**Internal orientation**

- Customer service
- Efficiency of operating process
- Attracting and training of high quality employees
- Analysis of financial weaknesses and strengths
- Past performance

**External orientation**

- Analysis of new business opportunities
- Analysis of demand opportunities
- Analysis of competition
- Performing market research

**Functional coverage**

- Marketing function
- Finance function
- Personnel function
- Operations function

**Involvement of key personnel**

- Time spent by the CEO in strategic planning
- Involvement of line managers in strategic planning
- Involvement of board members in strategic planning

**Use of planning techniques**

- Financial models
- Forecasting and trend analysis
- Portfolio analysis techniques

**Creativity in planning**

- Ability to anticipate surprises, threats and crises
- Flexibility to adapt to unanticipated changes
- Value of mechanism for identifying new business opportunities
- Role of identifying key problems
- Value as a basis for enhancing innovation

- Capacity to generate new ideas
- Formulating goals to be achieved in the competitive environment
- Capacity to generate and evaluate a number of strategic alternatives
- Anticipating, avoiding and removing barriers to strategic implementation

**Focus on control**

- Ability to communicate top management's expectations down the line
- Capacity to foster organisational learning
- Ability to communicate line management's concern to top management
- Value as a mechanism for integrating diverse functions and operations
- Monitoring and controlling the implementation of strategy
- Using multiple financial and non-financial control measures
- Using control techniques for monitoring performance
- Having control system to revise current plans

*Parnell and Karger 1996:48*

#### **6.2.1.1.1 Strategic planning**

The research adopts some constructs developed by Javad Kargar and John A. Parnell in the empirical study *Strategic planning emphasis and planning satisfaction in small firms: an empirical investigation*. The characteristics of a strategic planning system (Table 6.1 above) form the first section of the research instrument. A few additions and adaptations are made in the construction of the instruments.

The strategic planning characteristics of Javad Kargar and John A. Parnell are analysed using a 4-point Lickert scale, ranging from "not important" (1) to "very important" (4). The aim was to test the presence and prevalence of strategic planning. Each of the planning characteristics is discussed below.

**Internal orientation** is measured through the perceived degree of importance attached to customer service, efficiency of operation process, rewarding and training of employees, and analysis of financial strengths and weaknesses. Past performance looks at previous performance relative to current product strengths and weaknesses. **External orientation** is measured by four items relating to the general business and economic opportunities, competition and market analysis. **Departmental / functional co-operation** is measured

through functional understanding by employees, degree of cross functional support and coordination and integration in planning. **Management time and involvement** is measured by the degree of CEO, board member, and line manager involvement in the strategic planning process. **Staff creativity in planning** is assessed by a four-point scale measuring, among other things, a business's ability to anticipate surprises and crises, and to adapt to unanticipated changes. The **control** aspect is measured by an eight-item scale as reflected in Table 6.1. **The use of planning techniques** is measured by the degree of emphasis devoted to the application of financial models, portfolio analysis, and forecasting analysis techniques. Respondents' opinions of the benefits to be derived from strategic planning, namely effectiveness and improved performance, are measured by a respective single scale.

#### **6.2.1.1.2 Corporate entrepreneurship**

The measurement of business entrepreneurial activity uses the entrepreneurial performance index (EPI). This is adopted from Morris and Kuratko (2003:292). The EPI forms the second component of the measuring instrument. It is used to support Morris and Kuratko's EPI, in terms of dimensions, definitions and literature (questionnaire).

Elliason and Davidson (2003:7) note that instruments used to assess a business's entrepreneurial orientation indicate only a business's disposition towards, rather than involvement in, actual entrepreneurial activities. Morris and Kuratko's EPI instrument is adopted because it gauges more direct and tangible aspects of corporate entrepreneurial activities.

**Table 6.2 Entrepreneurial performance dimensions**

**Company Orientation.**

**Our company is characterised by:**

- A high rate of new product / service introductions compared with our competitors (including new features and improvements)
- An emphasis on continuous improvement in methods of production and / or service delivery
- Risk taking by key executives in seizing and exploring chance growth opportunities
- A “live and let live” philosophy in dealing with competitors
- Seeking of unusual, novel solutions by senior executives to problems via the use of “idea people”, brainstorming
- A top management philosophy that emphasises proven products and services, and the avoidance of heavy new product development costs
- A charismatic leader at the top

**In our company top-level decision making is characterised by:**

- Cautious, pragmatic, step-at-a-time adjustments to problems
- Active search for big opportunities
- Rapid growth as the dominant goal
- Large, bold decisions despite uncertainties of the outcome
- Compromises among the conflicting demands of owners, government, management, customers, employees, suppliers
- Steady growth and stability as primary concerns

**New product introduction**

- How many new products did your business introduce during the past two years?
- How would you rate the number of product improvements during the past two years compared with those of the previous years?
- How does the number of your product introductions compare with those of your major competitors?
- To what extent did these new product introductions include products that did not previously exist in your markets (new to the market)?

**New service introduction (for those who sell services)**

- How would you rate the number of services your business introduced during the past two years compared with previous years?
- How many existing services did you significantly revise or improve during the past two years compared with the previous years?

Table 6.2 continued

- How does the number of service introductions your company made compare with those of competitors?
- To what extent did these new service introductions include services that did not previously exist in your markets?

#### **New Process Introduction**

- Please rate the increase in the number of new methods or operational processes your organisation implemented during the past two years compared with the previous years. Examples of process innovations include: new systems for managing customer service or inventories, an improved process for collecting receivables, a major new sales or distribution approach

#### **Key Business Behavioural Dimensions**

- Our organisation's current strategic orientation is influenced primarily by:  
The resources we currently control (1) vs  
The perception of untapped opportunity (5)
- With regard to new opportunities, our organisation tends to:  
Commit fairly quickly, capitalise and move to the next opportunity (1) vs  
Approach with an evolutionary commitment that tends to be of long duration.
- Our organisation's approach to investing resources in new opportunities tends to involve:  
Multiple stages with minimal commitment at each stage (1) vs  
A single stage with complete commitment upon decision (5)
- When managing or controlling resources, we tend to:  
Be episodic in use, renting, leasing, contracting and outsourcing of resources (1)  
vs Ownership, purchase, control and employment of resources we use (5)
- Our organisation's management structure can be characterised as:  
A flat structure with multiple informal networks (1) vs  
A hierarchical structure with clearly defined authority and responsibility (5)
- Our organisation's compensation and reward system is:  
Value based and team based with unlimited earnings potential for employees (1)  
Vs Resource based, driven by short term performance data, with unlimited earning potential for employees (5)

*Morris and Kuratko (2002:292)*



**A business's entrepreneurial activity**, measured by the entrepreneurial performance index (EPI) developed by Morris and Kuratko (2002:292) as represented by the elements outlined in Table 6.2, is measured using the Lickert 4-point scale.

**Business orientation:**

Measures rate of product introduction, emphasis on continuous improvement, risk taking by executives, competitive aggressiveness, consultative management and charismatic leadership. The measure is a 5-point Lickert scale which ranges from “strongly agree” (1) to “strongly disagree” (5), with “unsure” as the medium measure.

**New process introduction:**

This assesses the number of new products / services introduced, compared with previous years, and compared with that of competitors. The presence or absence of each of those factors is rated using a 5-point scale ranging from “strongly agree” to “strongly disagree” for the business-orientation aspect, and “significantly less” to “significantly more” for new product / service introduction. It also assesses whether these new products are completely new or are improvements.

**Key business behavioural dimension**

This is measured in terms of a 5-point scale criterion, where 1 indicates that more emphasis is placed on the first criterion and 5 shows more emphasis is placed on the second aspect.

**6.2.1.1.3 Financial performance**

The impact of corporate entrepreneurship **on performance** is measured by a 5-point scale ranging from “no impact” to “great impact”, using five financial parameters: return on investments (ROI); return on equity (ROE); sales turnover ratio (STO); net profit after tax (NPAT); and the present value (PV).

**6.2.1.1.4 Dependent variables**

**Age** of business operations is measured by a 5-point scale ranging from “less than 3 years” to “over 50 years”.

**Duration of listing** is also measured by a 5-point scale ranging from “less than 5 years” to “over 50 years”.

**Business listing** only determined whether a business had a single or double listing, the primary listing being the Johannesburg Securities Exchange.

**Number of employees** levels were measured by a 5-point scale ranging from “0-200” to “over 5000” employees.

**Gross income** is measured by a 7-point scale ranging from “0-50 000 rands” to “over 10 billion rands” and **Gross asset** value by an 8-point scale ranging from “0-20 000 rands” to “over 10 billion rands”.

### 6.2.2 Sampling design

The study used the census or population of the businesses that were registered on the JSE Securities Stock Exchange South Africa as at 1 September to 30 November 2005, the period of data collection. The population consists of 340 businesses.

**Selection criteria:** Businesses selected were Public Companies as defined in the Companies Act 61 of 1973 (Gibson 1988:303). These are businesses that are basically profit seeking and trade their shares publicly. through listing on the JSE Securities Stock Exchange South Africa. The data list of all the companies listed at the JSE Securities Stock Exchange South Africa was sourced from the internet, <http://www.profile.co.za>. A profile of each company is provided in terms its biographical information, name, registration number, when founded, nature of business, sector, chairman, company secretary, contact details and financial information. The financial information includes, turn over, liabilities, capital employed and earnings. The list of companies was then crossed checked with the JSE Securities Stock Exchange South Africa membership list.

**Sample size:** 232 respondents (businesses) were secured from a total population of 340 businesses. The total population of 340 include the main bourse as well as the alternate bourse, composed of mainly small companies. The response rate is very good at 68%. Responses were received across all business sectors and geographical locations.

### 6.2.3 Data collection and sampling method

**Method:** The primary method of data collection was through personal interviews. All the subjects were contacted telephonically to inform them about the research as well as to agree on the method in which they would receive the data collection instrument (questionnaire). The questionnaire was then e-mailed, faxed or administered physically according to the agreed arrangement. Since the whole census was contacted telephonically, the “sample” was therefore normal and randomised.

Telephonic, electronic and physical follow-ups were done to ensure a maximum response rate as well as to respond to questions, clarifications and any other secondary communication between researcher and respondents.

The contact details (initially telephone) were then used to arrange the method they would receive the questionnaire. The target respondent was initially the Chief Executive Officer (CEO) of the business. However in many instances the CEO's were not able to complete the questionnaires and the assignment was delegated to other members of the senior management team. Questionnaires were in the end completed by a range of company personnel ranging from CEO's, company secretaries, chief accountants and senior management of different functional directorships. The key requirement which the researcher / author needed complied with most was that the respondent / s be a senior member of management and be directly involved in the strategic direction of the business. The requirement was met.

In a number of cases the questionnaires were completed by management teams.

The completed questionnaires were electronically mailed, faxed back or physically collected by the research team members.

**A pilot study** to test the research instrument was done in order to provide an exploratory approach to aid in operationalising constructs that needed further development. Cooper and Schindler (2001:359) note that a pre-test (pilot study) is not only an established practice for discovering errors but also useful for training the research team.

A total of 22 companies were approached for the pilot study. Appointments were set telephonically and respondents were visited at their place of work. In all cases the research instrument was electronically mailed to respondent before date of interview. The researcher (author) conducted all the pilot study interviews together with the research team.

Typing errors picked up were corrected and the content of the instrument was further improved.

**Problems encountered:**

Though the response rate was very good the financial resources to physically administer questionnaires were hardly adequate.

Sector specific information was left out of the questionnaires as well as the names of the companies so as to assure respondents of the confidentiality of the whole exercise. This concern was emphasised by respondents during the pilot study as well as during the main research. The absence of sector specific information could have improved the quality of the study. A complete list of the names of the businesses that responded could therefore not be provided as the researcher made an undertaking that names would not be disclosed in order to assure anonymity. Sector specific information would have provided an extra and very important variable in the analysis.

**Secondary data source:** This includes textbooks, journals and conference papers, mainly in the field of management and entrepreneurship. Newspaper articles and the internet were also consulted extensively.

**6.3 Chapter summary**

The chapter discussed the research methodology in detail. The discussion outlined the data collection method used and described how the measurement instrument was constructed and the type of data it generated. Primary data was collected from a total of 232 South African public businesses from a total population of 340 businesses. This will be supplemented by secondary sources.

## Chapter 7

### Presentation and Interpretation of Data

*Reality is not something that can be correctly or incorrectly apprehended. Rather, reality is defined through a process of social interchange in which perceptions are affirmed, modified, or replaced according to their apparent congruence with the perceptions of others.*

*Chaffee 1985:93*

#### 7.1 Introduction

This section presents the data analysis and interpretation of the results. Descriptive statistical analysis is discussed first. Factor analysis, correlation and analysis of variance (ANOVA) are discussed next, and inferences drawn on how each affect management.

Descriptive statistical techniques are used to analyse data characteristics in terms of shape, skewness and spread. Factor analysis is done to check validity and reliability of data. Correlation analysis is used to test the strength of the relationship between two variables when a linear difference between variables is assumed. Analysis of variance (ANOVA) is also used to measure the differences between variables. In order to find out the sources of differences within the different aspects of a factor, more detailed tests are done using the Scheffe's multiple comparison procedure. The factorial, correlation and ANOVA analyses are carried out on five factors, namely, strategic planning; strategic control; entrepreneurial orientation; new product introduction; and performance.

#### 7.2 Descriptive statistics

In order to have a broader appreciation of the data collected, **Descriptive statistical techniques** are used to analyse the data and obtain research results. Descriptive statistics are characteristics of the sample (Salkind 2000:150). The descriptive method was carried out first in order to reduce data sets and allow for easier interpretation, (Wimmer & Dominic

1983:165). It is also important to carry out this analysis because it provides a broad biography of the data under study. This will enable the contextualising of results.

This statistical method provides information that helps in deciding whether the central location value can be regarded as a reliable, representative value of all observations in data. Calculating the standard deviation of the theoretical distribution of the sample means, at a 95% confidence level, reflects how far the sample means can be derived from the population mean.

Descriptive statistics provide measures of location (mean, frequency), shape (skewness) and measures of spread (variance, standard deviation).

Numerical statistical summaries were created. The process provides valuable insights into the effectiveness of the coding and entering (Cooper & Schindler 2001:440). Data cleaning was done. Missing data, miscoded, out-of-range data and extreme values were rectified after a preliminary look at the data set.

These descriptive statistics are discussed in detail, covering the age of the business, age of listing, nature of listing, number of employees, sales turnover and asset value.

### 7.2.1 Age of business

**Table 7.1 Age of business (V2)**

Age in years	Frequency	Cumulative Percent	Cumulative Frequency	Cumulative Percent
0-3	16	7.96	16	7.96
4-10	51	25.37	67	33.33
11-20	35	17.41	102	50.75
21-50	51	25.37	153	76.12
+ 50	48	23.88	201	100.00

As shown in Table 7.1, a quarter of the businesses (25.37%) have been operating for periods of 4 to 10 years; 17.41% for periods of 21 to 50 years, and another quarter (25.37%) for over 50 years. Only 7.96% are less than 3 years old.

### 7.2.2 Duration of listing

**Table 7.2 Duration of listing (V3)**

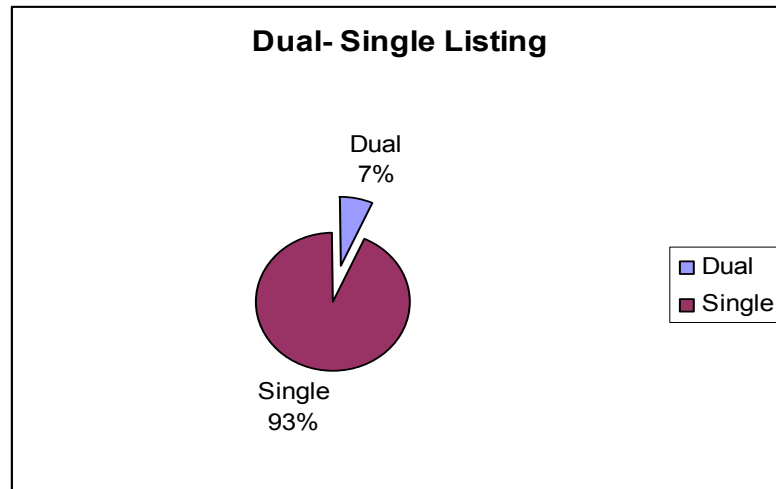
Duration of Listing in years	Frequency	Cumulative Percent	Cumulative Frequency	Percent
0-5 0yrs	57	28.36	57	28.36
1-10 yrs	61	30.35	118	58.71
11-20 yrs	34	16.92	152	75.62
21-50 yrs	35	17.41	187	93.03
Over 50 yrs	14	6.97	201	100.00

Table 7.2 above show that the majority of businesses, 30.35% (n =61), have been listed for less than 10 years. An almost equal number of businesses, 28.36 % (n=57), have been listed for 5 years or less. A lower percentage, 16.9% (n=34), have been listed for 11-20 years and a similar percentage of 17.41% (n=35) for 21-50 years. Only 6.97% of the businesses have been listed for over 50 years.

### 7.2.3 Number of listings

As reflected in Figure 7.1 below, only 6.97 % (n=14) have a dual listing. The majority of the businesses (n=187) are listed only at the Johannesburg Stock Market.

**Figure 7.1 Number of listings (V4)**



**7.2.4 Number of full-time employees**

Table 7.3 below shows that the category with the highest frequency is that with 1 to 200 employees, with a frequency of (n=56) or 28%. Businesses with employee numbers in the 2000 to 5000 category are almost equal in frequency to those with large employee pools of over 5000, with 17.50% (n=35) and 16.50% (n=33) respectively.

**Table 7.3 Number of full-time employees (V74)**

Fulltime employees	Frequency	Cumulative Percent	Cumulative Frequency	Cumulative Percent
0-200	56	28.00	56	28.00
201-500	27	13.50	83	41.50
501-1000	30	15.00	113	56.50
1001-2000	19	9.50	132	66.00
2001-5000	35	17.50	167	83.50
Over 5000	33	16.50	200	100.00



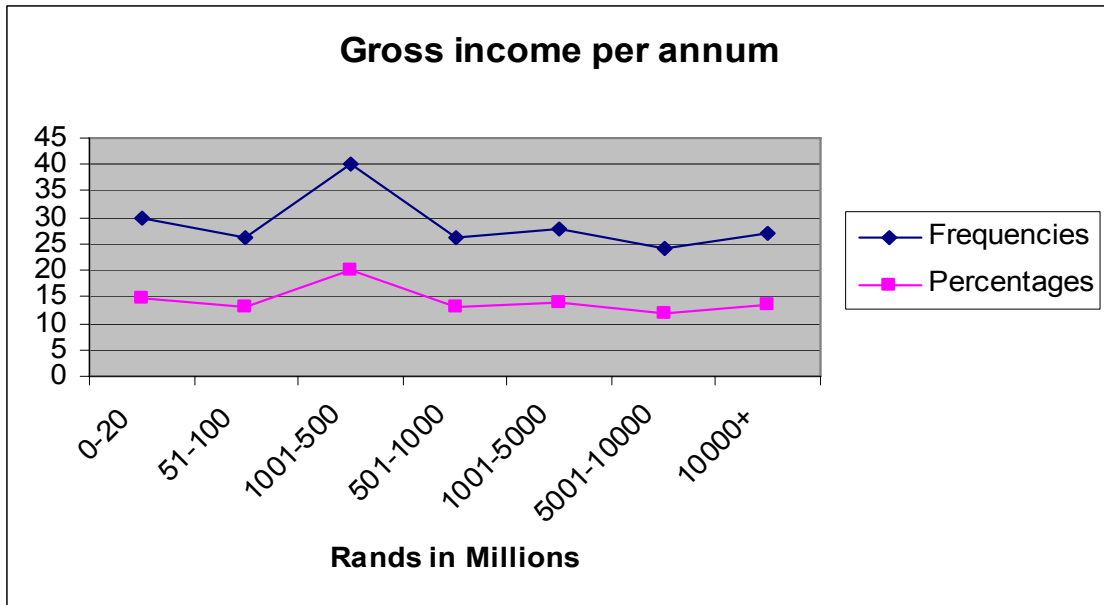
**7.2.5 Gross income per annum**

As shown in Table 7.4 and Figure 7.2, below, the income levels of most businesses are relatively the same. Percentages range from a minimum of 14.93% (n=30) of those earning less than R50 million rands to a maximum of 13.43% (n=27) of businesses earning between R1 billion and R10 billion rands. There is a relatively smooth spread of businesses from the least earning to the highest earning.

**Table 7.4 Gross income per annum (V75)**

Gross income per annum in R mill	Frequency	Cumulative Percent	Cumulative Frequency	Cumulative Percent
0-50	30	14.93	30	14.93
51-100	26	12.94	56	27.86
101-500	40	19.90	96	47.76
501-1000	26	12.94	122	60.70
1001-2000	28	13.93	150	74.63
2001-5000	24	11.94	174	86.57
Over 5000	27	13.43	201	100.00

**Figure 7.2 Gross incomes per annum (V75)**



### 7.2.6 Gross asset value

The gross asset data is shown in Table 7.5 below and discussed thereafter.

**Table 7.5 Gross asset value (V76)**

Gross asset value in R mill	Frequency	Cumulative Percent	Cumulative Frequency	Percent
0-20	21	10.50	21	10.50
21-50	19	9.50	40	20.00
51-100	29	14.50	69	34.50
101-500	40	20.00	109	54.50
501-1 bill	30	15.00	139	69.50
1.1-5 bill	15	7.50	154	77.00
5.1-10 bill	19	9.50	173	86.50
Over 10 bill	27	13.50	200	100.00

As shown in Table 7.5, the category with the highest number of businesses (20% (n=40)) is the R100 million to R500 million gross asset value category. This compares with 10% (n=19) for the least asset value of up to R20 million, and 13.50% (n=27) for those with assets of over R10 billion.

### 7.2.7 Descriptive statistical structure

The descriptive statistical analysis findings show that the shape and spread of the data is normal and therefore acceptable. This finding is consistent across the data set. Data reliability and validity are further tested through factorial designs.

### 7.3 Factorial design

**Factor analysis** is carried out to further understand the data, whose characteristics were found to be normal through descriptive analysis. In addition to being tested for normality the data is tested for reliability and validity using factorial design. According to Wimmer and Dominic (1983:234), factor analysis, which is a multivariate statistical procedure, is used primarily for data reduction, construct development and the investigation of variable

relationships. As a narrowing device it allows the selection of salient variables from large groups, providing simplification of dominant variables and replacing them with isolated smaller numbers of hypothetical variants.

Factor analysis is used in this study for the same reasons: for data reduction, for easy usage of data; and structure validation and reliability checks. It also assists in classifying variables and developing / refining research questions, ensuring meaningful results.

**Factorial design** is used because a number of factors are involved. The method allows for analysis of several independent variables and several dependent variables in a single study. This saves money, time and resources. This study is multidimensional and so it is reasonable to study the several dimensions and their relationships simultaneously, instead of studying one variable at a time. In this study factorial design is used to measure whether there is any significant difference between those businesses that practise strategic planning and those with certain levels of entrepreneurial activity.

The same measurement was used to assess which group of factors or groups of businesses have significant common responses to strategic planning and entrepreneurial activities.

### **7.3.1 Procedure for determining factor structure**

The two component instruments used in the study: strategic planning (Parnell & Karger); and entrepreneurial orientation (Morris and Kuratko) were all re-validated in order to determine structure and reliability using factor analysis.

- Eigenvalues > 1.00 were identified.
- The differentiation of possible factors was identified through clear breaks in the screen tests between eigenvalues >1.00.
- Variables were subjected to Exploratory Data Analysis (EDA) and where variables loaded were found to be < 3.00, they were removed and another round of exploratory analysis carried out.
- The procedure was repeated until five (5) “clean” structures emerged, namely; two factors under strategic planning; one factor under entrepreneurial orientation; another as new product introduction; and one factor under performance.

According to Cooper & Schindler (2001:475) exploratory data analysis (EDA) simplifies the goal of learning about data as much as is possible. It provides a perspective and set of tools for searching for clues and patterns.

An eigenvalue is a measure of the explanation power of a factor (Cooper and Schindler (2001:595). The isolated factors are named, “*strategic planning*”, “*strategic control*”, “*entrepreneurial orientation*”, “*new product*” and “*performance*”.

Rotated, unrotated and sorted rotated factor analysis was carried out for “*strategic planning*”, “*strategic control*” and the “*entrepreneurial orientation*” factors. Item analysis was carried out for the “*new product*” and the “*performance*” factors.

Cronbach’s alpha tests how well variables measure a single uni-dimensional latent construct. The alpha coefficients range from 0 – 1 and are used to describe the reliability of factors extracted from dichotomous and / or multipoint formatted questionnaires.

According to Wimmer and Dominic (1983:156) and also Nunnally (1978) most published content analyses typically report a minimum reliability coefficient of around 0.7. The higher the alpha, the more reliable the test. Cronbach’s alpha is used because it has the most utility for multi-item scales at interval level measurement (Cooper & Schindler 2001:217).

The five identified factors are discussed in detail.

### 7.3.2 Strategic planning factor analysis

Strategic planning variables assess the importance the business places on the given variables shown in Table 7.6.

Strategic planning variables generated two factors, **strategic planning** and **strategic control**. Loadings for the sorted rotated factors, variance explained percentages and the Cronbach’s coefficient alpha for each of these are shown in Table 7.6.

As shown in Table 7.6 , the Cronbach’s alpha for strategic planning of 0.85947 and 0.76218 for strategic control are greater than 0.7 (Cronbach’s alpha > 0.7), which shows a good factor structure and reliability.

The percentage variance explained, of 21% for strategic planning and 26% for strategic control is favourable in both factors.

The Eigenvalue of 5.8656, for strategic planning and 1.5361 for strategic control are both greater than 1.00, which shows that the factor is relevant. Eigenvalues are used to determine which factors are relevant and should therefore be analysed. Both factors should therefore be analysed.

***Each factor structure is therefore good and reliable.***

**Table 7.6 Factor loadings for strategic planning and strategic control**

Variable	Factor loadings	Factor loadings
Description	Strategic planning	Strategic control
Use of marketing opportunities	0.711	0.000
Comparison of product weaknesses, past and present	0.651	0.000
Time spent on market research	0.637	0.000
Control as a management tool	0.592	0.000
Use of control techniques to monitor performance	0.579	0.000
Setting of production targets	0.534	0.000
Importance of sales forecasts in planning	0.529	0.000
Anticipating barriers to strategy implementation	0.000	0.790
Capacity to generate new ideas	0.000	0.607
Participation of senior employees	0.000	0.502
Identifying key business problems	0.000	0.466
Ability to anticipate threats	0.000	0.465
Communication as control tool	0.000	0.449

Retention of best candidates	0.000	0.386
Rewarding of employees	0.000	0.381
Recruitment of best candidates	0.000	0.341
Market assessment of competitors	0.449	0.291
Training of employees	0.000	0.257
Analysis of potential business threats	0.449	0.000
Comparisons of product margins	0.482	0.000
Comparison of forecast with actual	0.416	0.000
Preparation of periodical financial statements	0.309	0.000
Conducting regular audits	0.494	0.000
Involvement of BOD in strategic planning	0.444	0.000
Strategic planning leads to business effectiveness	0.296	0.000
Use of control systems in revision of plans	0.277	0.000
Use of past performance in projections	0.376	0.000
Importance of bookkeeping in strategic planning	0.409	0.000
Percentage variance	0.21	0.26
Cronbach's alpha	0.85947	0.76218
Eigenvalue	5.8656	1.5361

### 7.3.3 Entrepreneurial orientation factor analysis

Factor loadings for **entrepreneurial orientation**, its percentage variance explanation and the Cronbach's alpha are shown in Table 7.7.

**Table 7.7 Factor loadings for entrepreneurial orientation**

Variable	Factor loadings
Description	Entrepreneurial orientation
Search for big opportunities	0.690
New product introduction	0.685
Risk taking by executives	0.553
Rapid growth as dominant goal	0.444
Novel solutions through people.	0.427
Bold decisions despite uncertainties	0.426
Compromises among conflicting demands	0.402
Continuous improvement	0.387
Ruthless competitiveness	0.339
Charismatic leadership	0.295
Percentage	0.23
Cronbach's alpha	0.7317
Eigenvalue	2.3244

**Entrepreneurial orientation** variables assess a business's entrepreneurial activities. The variables for **entrepreneurial orientation** range from V41 to V53 and their descriptions are shown in Table 7.7 above.

The variance explained is 23% (percentage) which is favourable. The Cronbach's alpha of 0.7317 is good and reliable since it is bigger than 0.7. (Cronbach's alpha > 0.7)

The Eigenvalue for entrepreneurial orientation, 2.3244 is greater than 1.00, which shows that the factor is relevant and should therefore be analysed.

***The measure is therefore structurally sound and reliable.***

**7.3.4 New products; and performance factors**

Variables V55 to V61 reflect the **new products** factor and V69 to V73, the **performance** factor. An item analysis of both factors was done and this is reflected in Table 7.8 and the scale statistic in Table 7.9.

**Table 7.8 Item statistics for new products and performance**

Scale – item	Item mean	Item variance	Item-scale correlation	N per item
Stable growth V55	3.606	0.951	0.88	132
New product introduction V56	3.515	0.962	0.83	132
Product introd. Trend V57	2.667	0.949	0.76	132
Product introd. competitors V58	3.800	0.672	0.78	125
Products new to market V59	3.696	0.848	0.79	125
Service introduction trend V60	3.544	0.520	0.76	125
Service improvement V61	2.637	0.715	0.70	124
Management structure V69	3.736	0.814	0.88	197
Compensation systems V70	3.736	0.874	0.87	197
Return on investment V71	3.690	0.935	0.79	197
Return on equity V72	3.914	0.668	0.77	197

All the item-scale correlations are positive because they are at least 0.7 (V71) or above. This reflects a good factor structure and reliability. Any measure at 0.7 or above shows a good factor structure and therefore a good reliability measure.



**Table 7.9 Reliability measure of new products and performance factors**

Scale	New products	Performance
N of items	7	5
N of examinees	166	197
Mean	3.267	3.728
Variance	0.557	0.567
Std. Dev.	0.746	0.753
Alpha	0.942	0.879

The Cronbach's values for **new products** (0.942) and **performance** (0.879) are both favourable because they are above 0.7 and therefore the factor structures are good and the measures reliable.

### 7.3.5 Data Reliability

Reliability and validity are the hallmarks of a good measurement instrument (Salkind 2000:105). Reliability is when a test measures the same aspect a number of times and brings about the same outcome. Validity is when the property of a test actually measures what it purports to measure (Cooper & Schindler 2001:775).

The instrument used is validated for reliability and consistency as reflected by the respective factor Cronbach's alphas, variance percentages and the eigenvalues. The five factors are structurally sound and reliable.

The data is further analysed for internal relationships.

### 7.4 Correlations

The correlation analysis is carried out to find out the nature of relationships between groups of variables or factors. Factors were isolated through factor analysis, as discussed previously. The relationships between data groups are important since they provide better understanding of the data, such as the nature of the relationship and the extent of the relationship. The study's propositions attempt to establish the extent and degree of the relationships between

the different variables / factors. It is the degree and nature of these correlations that result in the acceptance or rejection of the propositions. Owing to the fact that most of the study's propositions theorise on some relationships, the correlation outcomes are important findings of this research.

Pearson's correlation is carried out on five factors: strategic planning (strpl); strategic control (strco); entrepreneurial orientation (entor); new product introduction (newpr); and performance (perfm).

Pearson's product moment correlation is represented by the  $r$ , range from -1.00 to +1.00. A correlation can be positive or negative. A perfect negative correlation would be -1.00 while, + 1.00 would be a perfect positive correlation and 0.00 would be a sign of no correlation.

A correlation coefficient is a pure number, not expressed in any measurement. It is independent of the size and units of measurement of the original data (Wimmer & Dominick 1983:182). The results of the correlation test carried out are shown in Table 7.10 below.

**Table 7.10 Pearson's correlation coefficient**

Pearson Correlation Coefficients					
Prob >  r  under H0: Rho=0					
Number of Observations					
	1	2	3	4	5
1 strpl	1.00000 195	0.46929 <.0001 195	0.35156 <.0001 189	0.23844 0.0023 161	0.16419 0.0232 191
2. strcon	0.46929 <.0001 195	1.00000 195	0.27585 0.0001 189	0.20532 0.0090 161	0.23761 0.0009 191
3 entor	0.35156 <.0001 189	0.27585 0.0001 189	1.00000 194	0.25632 0.0010 161	0.18183 0.0118 191
4 newpr	0.23844 0.0023 161	0.20532 0.0090 161	0.25632 0.0010 161	1.00000 166	0.22493 0.0039 163
5 perfm	0.16419 0.0232 191	0.23761 0.0009 191	0.18183 0.0118 191	0.22493 0.0039 163	1.00000 197

#### 7.4.1. Strategic planning factor

The Pearson's correlation, in Table 7.10 above, shows that there is a relationship between **strategic planning** (strpl) and each of the following factors:

- strategic control (strco)
- entrepreneurial orientation (entor)
- new product introduction (newpr) and
- financial performance (perfm)

This is shown by the respective p-values of, < 0.0001 (strcon), < 0.0001 (entor), 0.0023 (newpr) and 0.0232, (perfm) as reflected in Table 7.10. All the p-values are within the range - 1 to +1, showing the existence of the correlation.

However, though correlations exist between strategic planning and each of the factors, the relationships are weak, as reflected by the correlation values of 0.46929 for strategic control, 0.35156 for entrepreneurial orientation, 0.23844 for new product introduction and 0.16419 for performance, as shown in Table 7.10 above. Each of the values is far less than 0.6 which is regarded as a minimal level measure of a strong correlation.

Each of these correlations is discussed in detail, starting with the strategic planning factor.

##### 7.4.1.1 Strategic planning and strategic control correlation

**Proposition P1** stated that businesses that practise strategic planning do not show significantly higher levels of strategic control.

Though the relationship between strategic planning and strategic control is relatively stronger than all the other factors, it is still weak at 0.46929, and a p-value of < 0.0001, as shown in Table 7.10. The relationship is not significant and **Proposition P1 is therefore accepted.**

This result does imply that those businesses that practise strategic planning are more closely related to the practice of strategic control than to the other three factors. The finding (close relationship) is expected, considering the fact that strategic control is an integral part of the strategic planning process, while the factors entrepreneurial orientation and new product

introduction are more associated with entrepreneurship. However the non-significance of the relationship between strategic planning and strategic control is somewhat surprising, considering that control is part of strategic planning. This may imply that those businesses that practise strategic planning may not be doing so properly. As stated by Drejer (2004:504) it is not the planning that is important, but the quality thereof.

#### **7.4.1.2 Strategic planning and entrepreneurial orientation correlation**

**Proposition P2** stated that businesses that practise strategic planning do not show significantly higher levels of entrepreneurial orientation.

The results, as discussed in 7.4.1 above, show that the relationship is weak at 0.35156 and a p-value of < 0.0001. It is therefore not significant and **Proposition P2 is accepted.**

Although the relationship is not significant, the entrepreneurial orientation factor is the one most closely correlated with strategic planning after strategic control, compared with new product introduction and performance factors. The deduction from this result could be that businesses that practise strategic planning do not do so in an entrepreneurial way, what Legge and Hindle (2004:169) term *entrepreneurial strategic planning*. The fact that this relationship is weak and not significant is a reflection of the poor practice by South African businesses of *strategic entrepreneurship*, that is, the integration of strategic planning and entrepreneurship, despite the benefits that can be derived from such a practice. This is also an indictment of South African businesses and suggests that it may be linked to why the country has a relatively low entrepreneurial orientation score (GEM reports). The results clearly show that businesses do not build in entrepreneurship in their strategic planning.

#### **7.4.1.3 Strategic planning and new product correlation**

**Proposition P3** stated that businesses that practise strategic planning do not show significantly higher levels of new product introduction. This relationship is weak and therefore not significant, as reflected in Table 7.10 and discussed in 7.4.1 above. **Therefore Proposition P3 is accepted.**

New product introduction is associated more with entrepreneurship than with planning. If businesses are not entrepreneurial and do not build in entrepreneurship into their planning, as

discussed in 7.4.1.2 above, then prevalence of new product introduction is likely to be low. This also shows that businesses do not use new product introduction as a competitive tool, since strategic planning is about building competitiveness. New product introduction has to do with innovation and creativity, so this weak correlation shows that businesses do not emphasise or build creativity and innovation into their planning and activities.

This result is consistent with the weak correlation that was found between strategic planning and performance, which is discussed next.

#### **7.4.1.4 Strategic planning and performance**

**Proposition P4** stated that businesses that practise strategic planning do not show significantly higher levels of financial performance.

The correlation between strategic planning and the performance factor is weak and therefore not significant, as reflected by a p-value of 0.0232 and a correlation measure of 0.16419 which is far below the acceptable measure of 0.6. The performance factor has the weakest correlation with strategic planning out of all the factors under study.

There **is not** a significant relationship between strategic planning and performance and therefore, **Proposition P4 is accepted.**

This result contrasts with the finding by Miller and Cardinal (2001), which showed that a positive relationship exists between strategic planning and performance.

The result shows that the practice of strategic planning does not necessarily lead to higher performance levels. This finding is consistent with other previous studies such as that of Wickham (2004:320), which found such a relationship inconclusive. As pointed out by Lumpkin, Hills and Shrader (1998:1) and Ensley and Banks (19194:4), empirical investigations of established businesses have failed to find a strong link between business planning and performance.

The correlation between the factor strategic planning and each of the other factors: strategic control; entrepreneurship orientation; new product introduction; and performance are weak although positive.

#### 7.4.2 Strategic control factor

There is a correlation between **strategic control** and each of the following factors: entrepreneurial orientation; new product introduction; and performance, as reflected by the respective p-values of 0.0001 for entrepreneurial orientation, 0.0090 for new product introduction and 0, 0009 for performance, as reflected in Table 7.10 above.

The other measure of the relationship between strategic control and each of the factors, entrepreneurial orientation (0.27585); new product introduction (0.20532); and performance (0.23761), as shown in Table 7.10, are also weak, because the measures are far less than the 0.6 level. Measures at or above 0.6 would reflect a significant correlation. There is therefore not a significantly strong relationship between strategic control and each of the stated factors. The fact that these weak correlations are positive is, however, a reflection of the practice of both strategic control and entrepreneurship in South Africa.

##### 7.4.2.1 Strategic control factor and entrepreneurial orientation

**Proposition P5** stated that businesses that practise strategic control as part of strategic planning do not show significantly higher levels of entrepreneurial orientation. There **is not** a significant relationship between strategic control and entrepreneurial orientation, given a p-value of 0.0001 and a correlation measure of 0.27385. **Proposition P5 is therefore accepted.**

The results of the study show that businesses that practise strategic control do not necessarily show high levels of entrepreneurial orientation. This finding is consistent with the literature, which shows that control tends to restrict entrepreneurship in a business. As Morris and Kuratko (2002:220) put it, “one should give up control in order to gain control” as a way of cultivating an entrepreneurial culture. The result shows the weak practice of entrepreneurial strategic control as a management style. This is a management style where employees are empowered in order to allow their entrepreneurial spirit to flourish. Morris and Kuratko (2002:220) term this as the *entrepreneurial domain* as opposed to the *administrative domain*.

#### 7.4.2.2 Strategic control factor and new product introduction

**Proposition P6** stated that businesses that practise strategic control as part of strategic planning do not show significantly higher levels of new product introduction.

In considering the relationship between control and new product introduction, the results, as discussed in 7.4.2 above, show that there **is not** a significant relationship between the strategic control factor and new product introduction. **Proposition P6 is therefore accepted.**

New product introduction is an element of entrepreneurial orientation. The finding of a weak relationship between control and new product introduction is consistent with the link between strategic planning and entrepreneurial orientation. However one should note that the correlation is positive and not negative.

#### 7.4.2.3 Strategic control factor and performance

**Proposition P7** stated that the practice of strategic control did not show significantly higher levels of financial performance.

The relationship between strategic control and performance **is not** significant, as discussed in 7.4.2 above. There is a weak correlation between strategic control and performance as reflected by a p-value of 0.0009 and a correlation value of 0.23761, which is far below the significant measure of 0.6. **Proposition P7 is accepted.**

The result shows that the practice of strategic control does not strongly reflect higher levels of business performance. There is, however, a positive and not a negative relationship though this relationship is weak.

#### 7.4.3. Entrepreneurial orientation

There is a correlation between entrepreneurial orientation and each of the factors: new product introduction; and performance, as reflected by the p-values of 0.010, for new product introduction and 0.0118 for performance.

However, the relationship between entrepreneurial orientation and each of the factors: new product introduction (0.25362); and performance (0.18183) is weak, as shown in Table 7.10. The above values are far below the measure of 0.6, a level which would reflect a minimally strong correlation. There is therefore **not a** significant relationship between entrepreneurial orientation and each of the factors new product introduction and performance. These relationships are discussed further, below. The relationships are, however, all positive.

#### **7.4.3.1 Entrepreneurial orientation and new product introduction**

**Proposition P8** stated that businesses that are entrepreneurially oriented do not show significantly higher levels of new product introduction. Since the relationship between **entrepreneurial orientation** and new product introduction is **not** significant, **Proposition P8 is accepted.**

This finding of a weak relationship is surprising, considering the fact that new product orientation is supposed to be one of the key elements of an entrepreneurial business. Entrepreneurially orientated businesses should reflect a high level of new product introduction. This is because new product introduction results from high levels of innovation and creativity. The result is a reflection of the low entrepreneurial orientation of South African businesses, as reflected also in the GEM reports throughout the period in which the country was included in the survey, beginning in 2001. The need for new product introduction / entrepreneurial orientation cannot be overemphasised, if businesses are to be global players.

#### **7.4.3.2 Entrepreneurial orientation and performance**

**Proposition P9** stated that businesses that are entrepreneurially oriented do not show significantly higher levels of financial performance. As discussed in 7.4.3 above, the relationship between entrepreneurial businesses and performance is weak. The relationship is **not** significant since 0.25632 is far below the acceptable measure of significance of 0.6. **Proposition P9 is therefore accepted.**

Research has shown that entrepreneurial businesses are expected to perform better than non-entrepreneurial ones (Robinson & Pearce 1984:133). In addition, Pearce and Carland (1996:3) note that several researchers have found links between performance and the



presence of entrepreneurship. Research by Antoncic and Hisrich (2003:533) found that entrepreneurial orientation is strongly, positively and significantly related to profitability, thereby indicating that entrepreneurship tends to be a good predictor of performance.

However Wickland and Shepherd (2005:87) found that entrepreneurial orientation “generally” leads to improved performance. The fact that their finding was not without exceptions is consistent with the weak relationship between entrepreneurial orientation and performance found in this study.

Moreover, a weak relationship between entrepreneurial orientation and performance is consistent with the weak relationship between entrepreneurial orientation and new product introduction. New product introduction is usually associated with high performance. As shown by Durant and Coeurderoy (2001:475), the propensity to innovate (employ new product introduction) enabled businesses to achieve competitive advantage and performance.

#### **7.4.4 New product introduction and performance**

**Proposition P10** stated that businesses that have high new product introduction levels do not show significantly higher levels of financial performance.

A correlation exists between new product introduction and the performance factor, as reflected by the p-value of 0.0039. However that relationship is weak, as reflected by the value 0.22493, which is far below 0.6. There is therefore **not** a significant relationship between new product introduction and performance. **Proposition P10 is therefore accepted.**

As discussed earlier in 7.4.3, this is a surprising result, given that empirical studies by Antoncic and Hisrich (2004) and Hitt et al. (2001) have linked the introduction of new products to wealth creation for shareholders or to better business performance.

Zhao (2005:28), researching perceptions of entrepreneurship and innovation, also found that entrepreneurial businesses that were continuously creating new products and services, projects, new business opportunities and markets, regardless of size and the industry, showed a positive performance.

The explanation for the result in this study might be that if businesses' introduction of new products is low, then there would not be a strong correlation between the two factors. Considering the well-documented low entrepreneurial orientation of South African businesses (GEM Reports), which implies low new product introduction, then a weak link with performance should be expected.

Though correlations between the practice of strategic planning and entrepreneurship are weak, they are at least positive.

### **7.5 Analysis of variance (ANOVA)**

After analysing the correlations between variables and factors it becomes scientifically prudent to find out the differences between the same groups of variables and factors. This is done through the Analysis of Variance method (ANOVA).

ANOVA is a versatile statistic which tests for the significant differences between two or more groups of means and additionally breaks down the variability of a set of data into its component sources of variation (Wimmer & Dominic 1983:215).

The ANOVA is carried out in order to provide a more in-depth analysis of the data. As with the correlations, some of the study's propositions are built on the significant differences between variables and factors. ANOVA is therefore used to prove or disprove some of the study's propositions.

An analysis of variance (ANOVA) was carried out for each of the factors: strategic planning; strategic control; entrepreneurial orientation; new product introduction; and performance. To deepen the analysis further, Scheffe's (ANOVA) test was further carried out to find the source of the variances between the variables.

#### **7.5.1 Strategic planning factor analysis of variance (ANOVA)**

The overall ANOVA result for the strategic planning factor is shown in Table 7.11.1 below. A discussion of the results follows.

**Table 7.11.1 Overall ANOVA on the strategic planning factor**

Source of Variation	D.F	Sum of squares	Mean square	F Value	P-Value
Between all Groups	26	10.5623	0.40626645	2.93	< 0.0001***
Within Groups	166	22.9790	0.138428		
Total	192	33.541977			

\*\*\* indicates a statistically significant variance at  $\alpha = 0.05$  level

The p-value of 0.0001 is  $< \alpha = 0.05$  as reflected in Table 7.11.1 above. This shows that **there is** a statistically significant difference between the strategic planning factor and one or more of the different business categories: age; duration of listing; number of full-time employees; gross income per annum; and gross asset value.

However, the result reflected in Table 7.11.1 does not indicate which individual mean or means are different from the consensus value and in what direction they deviate. A more detailed ANOVA examines the difference between each pair of means and indicates significantly different stratification group means at a specified level.

This is shown in Table 7.11.2 below.

It is found that **there is** a statistically significant difference between strategic planning and **age** whose p-values 0.0109,  $< \alpha = 0.05$ ; and strategic planning and **gross asset value**, p-value 0.0021  $< \alpha = 0.05$  level. It is also found that there **is not** a statistically significant difference between strategic planning and the following variables: duration of listing (0.0772); number of full-time employees (0.1230); and gross income (0.2055) at  $< \alpha = 0.05$  level.

**Table 7.11.2 ANOVA: between strategic planning (SP) and biographic variables**

Proposition	Variable	D.F	Mean square	F Value	P-Value
P11.1 (SP Vs age)	Age (V 2)	4	0.46829004	3.38	0.0109 ***
P11.2 (SP Vs duration of listing)	Duration of listing (V 3)	4	0.27648233	2.00	0.0972
P11.3 (SP Vs f-time employees)	Full-time employees (V 74)	5	0.24415175	1.76	0.1230
P11.4 (SP Vs gross income)	Gross income (V 75)	6	0.19810248	1.43	0.2055
P11.5 (SP Vs gross asset value)	Gross asset value (V 76)	7	0.46888506	3.39	0.0021 ***

\*\*\* indicates a statistically significant variance at  $\alpha = 0.05$  level

**Propositions P11(1-5)** stated that a statistically significant difference does not exist between strategic planning and the following variables, age (**P11.1**); duration of listing (**P11.2**); number of full-time employees (**P11.3**); gross income (**P11.4**); and gross asset value (**P11.5**). Applying the p-value *Acceptance Rule* that one should accept the proposition if, and only if, the p-value is bigger than  $> \alpha$ , alpha, propositions duration of listing (**P11.2**), number of full-time employees (**P11.3**), gross income (**P11.4**) are accepted. Applying the reverse effect of the same rule, propositions age (**P11.1**) and gross asset value (**P11.5**) *is rejected*. The results are summarised below.

**Proposition P11.1 - rejected**

***Proposition P11.2 - accepted***

***Proposition P11.3 - accepted***

***Proposition P11.4 - accepted***

***Proposition P11.5 - rejected***

The result shows that a statistically significant difference **does not** exist between duration of listing, number of full-time employees and gross income regarding the practice of strategic planning. This implies that businesses with different duration of listing periods do not significantly differ with regard to the practice of strategic planning. Businesses which differ with regard to number of full-time employees and gross income levels also do not differ in the way they approach strategic planning.

This finding supports the assertion that business size (normally measured by number of employees and gross income) does not significantly determine the practice of strategic planning. All businesses, irrespective of size, practise strategic planning. Nor does the practice of strategic planning differ according to the period of listing.

A significant statistical difference **does exist** between ***strategic planning*** and a business's ***age*** (P11.1) and also between ***strategic planning*** and ***gross asset value*** (P11.5) as shown in Table 7.11.2.

This result shows that the variables age and gross asset value do play a significant role in strategic planning. This implies that age of a business (whether it is a young or an old business) affects strategic planning. The rejection of proposition P11.5 (gross asset value) implies that businesses of different gross asset values differ with regard to strategic planning.

#### **7.5.1.1 Scheffe's test, between strategic planning and biographics (age & gross asset value)**

To further investigate the differences between the strategic planning factor and its biographics: age and gross asset value, a more detailed Scheffe's ANOVA was carried out. In order to control Type 1 Error (where a true hypothesis is wrongly rejected), further tests are carried out using the Scheffe's multiple comparison procedure. According to Schindler and Cooper (2001:513), Scheffe's test is a further test used after a hypothesis is rejected. It helps

the researcher find the sources of differences within the different levels of a variable. In this case Scheffe’s test was carried out to find out which ranges within the variable have a difference with the factor strategic planning. This was done on the variables which have shown a significantly strong correlation with strategic planning at  $\alpha = 0.05$  level. The result of the further analysis of variables **age** and **gross asset value** are shown in Table 7.11.2.1 and Table 7.11.2.2 respectively.

**Table 7.11.2.1 Scheffe’s test: between age and the strategic planning factor at  $\alpha = 0.05$  significant level**

Age stratification	Difference between Means	Simultaneous 95% confidence limits		
4 < 5	0.02206	-0.18744	0.23157	
4 < 2	0.05664	-.0.15287	0.26614	
4 < 3	0.06790	-0.16114	0.29694	
4 < 1	0.504940.	0.20948	0.80041	***
5.< 4	-0.02206	-0.23157	0.18744	
5 < 2	0.03457	-0.17710	0.24625	
5 < 3	0.04584	-0.18519	0.27686	
5 < 1	0.48288	0.18587	0.77989	***
2 < 4	-.0.5664	-.0.26614	0.15287	
2 < 5	-0.03457	-.024625	0.17710	
2 < 3	0.01126	-0.21975	0.24229	
2 < 1	0.44830	0.15130	0.74531	***
3 < 4	-0.6790	-0.29694	0.16114	
3 < 5	-0.04584	-0.27686	0.18519	
3 < 2	-0.01126	-0.24229	0.21976	
3 < 1	0.43704	-0.12595	0.74813	***
1 = less than 2 years; 2 = 4 to 10 years; 3 = 11 to 20 years; 4 = 21 to 50 years; 5 = more than 50 years.				

\*\*\* indicates a statistically significant variance at  $\alpha = 0.05$  level

**Propositions P11.1.1 to P11.1.5** stated that there is a statistically significant difference between strategic planning regarding the following age strata: less than 2 years (**P11.1.1**); 4 to 10 years (**P11.1.2**); 11 to 20 years (**P11.1.3**); 21 to 50 years (**P11.1.4**); and over 50 years (**P11.1.5**).

The findings are that a statistically significant variation **does exist** between the different age strata stated above, as shown by the following results, **1 > 4, 1 > 5, 1 > 2, & 1 > 3** in Table 7.11.2.1. As a result of this finding, **Propositions P11.1.1 to P11.1.5** below are rejected.

**Proposition P11.1.1: rejected**

**Proposition P11.1.2: rejected**

**Proposition P11.1.3: rejected**

**Proposition P11.1.4: rejected**

**Proposition P11.1.5: rejected**

There **is** a statistically significant difference between age stratum less than 2 years and the other age strata, namely 4 to 10 years; 11 to 20 years; 21 to 50 years; and over 50 years regarding strategic planning.

**The result indicates that the proposition P11.1 was not erroneously rejected.**

Table 7.11.2.1 above shows that those businesses that have been operating for less than two years have significantly higher levels of strategic planning than businesses which have been operating for 4 to 10 years (**1 > 2**); 11 to 20 years (**1 > 3**); 21 to 50 years (**1 > 4**); and over 50 years (**1 > 5**).

**Table 7.11.2.2 Scheffe’s Test: between gross asset value and the strategic planning factor at  $\alpha = 0.05$  significant level**

Gross asset value stratification	Difference between Means	Simultaneous 95% confidence limits		
<b>8 &lt; 2</b>	0.00347	-0.34409	0.35104	
<b>8 &lt; 1</b>	0.04663	-0.28571	0.37896	
<b>8 &lt; 3</b>	0.28935	-0.02152	0.60022	
<b>8 &lt; 5</b>	0.36508	0.05699	0.67316	***

2 < 8	-0.00347	-0.35104	0.34409	
2 < 1	0.43150	-0.32374	0.41004	
2 < 4	0.20724	-0.11959	0.53406	
2 < 3	0.28588	-0.06169	0.63345	
2 < 5	0.36161	-0.01653	0.70668	***
1 < 8	-0.04663	-0.37896	0.28571	
3 < 6	-0.14213	-0.50996	0.22570	
3 < 4	-0.07864	-0.36614	0.20885	
3 < 5	0.07573	-0.23236	0.38381	
5 < 8	-0.36508	-0.67316	-0.05699	***
5 < 2	-0.36161	-0.70668	-0.01653	***
5 < 1	-0.31845	-0.64818	0.01128	
5 < 4	-0.15437	-0.43885	0.13011	
5 < 3	-0.07573	-0.38381	0.23236	
<p>1 = 0 – R20mill; 2 = R21mill – R50mill; 3 = R51mill – R100mill; 4 = R101mill – R500mill; 5 = R501mill – R1bill; 6 = R1.1bill – R5bill; 7 = R5.1 – R10bill; 8 = over R10bill. R = Rands; mill = million; bill = billion.</p>				

\*\*\* indicates a statistically significant variance at  $\alpha = 0.05$  level

*Please note that Table 7.11.2.1 does not reflect all the non-significant variances. Most of these have been omitted because it was felt that their presence made the table too long and they did not add value to the analysis. Their omission does not however affect the statistical content of the data presented in the table.*

**Propositions P11.5.1 to P11.5.5** stated that a statistically significant variation does not exist between strategic planning regarding the following gross asset value strata; 0 - R20 million rands, (P11.5.1); 21 - 50 million rands (P11.5.2); 51 - 100 million rands (P11.5.3); 101 - 500 million rands (P11.5.4); 501 - 1 billion rands (P11.5.5); 1.1 - 5 billion rands (P11.5.6); 5.1- 10 billion rands, (P11.5.7); over 10 billion rands (P11.5.8).

As shown in Table 7.11.2.2, differences exist within the gross asset value variable strata. The results show that the 501 million - 1 billion rands stratum (**P11.5.5**) is significantly different



statistically from the 21 - 50 million rands stratum (**P11.5.2**), as shown by (**5 > 2**), and the over 10 billion rands stratum (**P11.5.8**) (**5 > 8**). The 501 million - 1 billion rands stratum **is not** significantly different from the other gross asset strata, namely 0 - R20 mill rands (P11.5.1); 51 - 100 million rands (P11.5.3); 101 - 500 million rands (P11.5.4); 1.1 - 5 billion rands (P11.5.6); and 5.1 - 10 billion rands (P11.5.7).

In a situation where a statistically significant difference exists, the proposition is rejected. Where a statistically significant difference does not exist, the proposition is accepted. The results are summarised below.

***Proposition P11.5.1: - accepted***

***Proposition P11.5.2: - rejected***

***Proposition P11.5.3: - accepted***

***Proposition P11.5.4: - accepted***

***Proposition P11.5.5: - rejected***

***Proposition P11.5.6: - accepted***

***Proposition P11.5.7: - accepted***

***Proposition P11.5.8: - rejected***

The results show that businesses whose gross asset values are in the R501 million to R1 billion category are significantly different in their approach to strategic planning from those businesses whose gross asset values are between R21 million - R50 million and those whose gross asset values are over R10 billion. As shown in Table 7.11.2.2, **5 > 8 and 5 > 2**, businesses in the R501 - R1 billion stratum reflect higher levels of strategic planning practice.

The results imply that the gross asset value amount does not have a significant effect on a business's practice of strategic control. Since gross asset value is at times used as a measure of size, this implies that business size (measured by gross asset value) does not have a significant effect on the practice of strategic control.

***The results indicate a possibility that a true proposition, P11.5, may have been wrongly rejected.***

#### 7.5.1.2 Further analysis: sub propositions, duration of listing, number of full-time employees and gross income

This section further discusses the propositions that were accepted as reflected in Table 7.11.2 above and discussed thereafter. The accepted propositions are as follows, duration of listing (P11.2), number of full-time employees (P11.3) and gross income (P11.4).

As a result of the acceptance of **P11.2** above, the **sub propositions P11.2.1 to P11.2.5**, which stated that a significant variation does not exist between strategic planning regarding businesses with the following duration of listing strata: less than 2 years (P11.1); 4 to 10 years (P11.2); 11 to 20 years (P11.3); 21 to 50 years (P11.4); and over 50 years (P11.5), **are all accepted.**

There **is not** a statistically significant difference between the following **duration of listing** strata: less than 2 years; 4 to 10 years; 11 to 20 years; 21 to 50 years; and over 50 years regarding strategic planning.

Since **no** significant difference was found between strategic planning regarding **number of full-time employees** (P11.3) and the proposition accepted, the **sub propositions (P11.3.1) 0 - 200; (P11.3.2) 201 - 500; (P11.3.3) 501 - 1000; (P11.3.4) 1001 - 2000; (P11.3.5) 2001 - 5000; and (P11.3.6) over 5000, are all accepted.**

The results show that the different levels of full-time employees do not directly impact on the practice of strategic planning.

As a result of the acceptance of **Proposition P11.4** above, the sub **propositions P11.4.1 to P11.4.5**, which suggested that a significant variation does not exist between strategic planning regarding the following **gross income** strata, 0 - 50 million rands (**P11.4.1**); 51 - 100 million rands (**P11.4.2**); 101 - 500 million rands (**P11.4.3**); 501 - 1 billion rands (**P11.4.4**); 1.1 - 5 billion rands (**P11.4.5**); 5.1 - 10 billion rands (**P11.4.6**); and over 10 billion rands (**P11.4.7**) **are all accepted.**

**7.5.2 Strategic control factor analysis of variance (ANOVA)**

The strategic control factor’s variability is analysed and discussed. The overall ANOVA results are shown in Table 7.11.3 and the more detailed ANOVA between the strategic control factor and the independent variables is shown in Table 7.11.3.1.

**Table 7.11.3 Overall ANOVA on the strategic control factor**

Source of Variation	D.F	Sum of squares	Mean square	F Value	P-Value
Between all Groups	26	36.7010059	1.4115772	1.57	0.0488 ***
Within Groups	166	149.5002400	0.9006039		
Total	192	186.2012460			

\*\*\* indicates a statistically significant variance at  $\alpha = 0.05$  level

The p-value of 0.0488 is smaller  $< \alpha = 0.05$  as reflected in Table 7.11.3 above and this shows that **there is** a statistically significant difference between strategic control and one or more of the different business categories: age; duration of listing; number of full-time employees; gross income per annum; and gross asset value.

However, the result reflected in Table 7.11.3 does not indicate which individual mean or means are different from the consensus value and in what direction they deviate. A more detailed analysis is shown in Table 7.11.3.1.

The more detailed ANOVA shown in Table 7.11.3.1 shows that there **is not** a statistically significant difference between the factor strategic control and the following independent variables: age; duration of listing; gross income; and gross asset value, tested at  $\alpha = 0.05$  level. This is because, as shown in Table 7.11.3.1 the p- values of age (0.8405); duration of

listing (0.9299); number of full-time employees (0.3959); gross income (0.0770); and gross asset value (0.1257), are all greater  $> \alpha = 0.05$ .

Applying the p-value acceptance rule that one should accept the proposition if, and only if p-value is greater than alpha, these following **propositions P12.1 to P12.5 are therefore accepted.**

**Table 7.11.3.1 ANOVA: between strategic control (SC) and biographic variables**

Proposition	Variable	D.F	Mean square	F Value	P-Value
P12.1 (SC Vs age)	Age (V 2)	4	0.31942008	0.35	0.8405
P12.2 (SC Vs duration of listing)	Duration of listing (V 3)	4	0.19348547	0.21	0.9299
P12.3 (SC Vs f-time employees)	Full-time employees (V 74)	5	0.93671439	1.04	0.3959
P12.4 (SC Vs gross income)	Gross income (V 75)	6	1.74808426	1.94	0.0770
P12.5 (SC Vs gross asset value)	Gross asset value (V 76)	7	1.48265895	1.65	0.1257

The result shows that a statistically significant difference **does not** exist between duration of listing, number of full-time employees and gross income regarding the practice of strategic control. This implies that the variables, age, duration of listing, number of full-time employees, gross income and gross asset value do not play a significant role in strategic control.

As a result of the acceptance of the **propositions P12.1 to P12.5** above, no further tests were carried out. The sub-propositions, which stated that there was no statistically significant variance between strategic control and specified strata of the variables, age, duration of listing, number of full-time employees, gross income and gross asset value, are **all accepted**. Each of the propositions is briefly discussed in detail below.

**Propositions 12.1.1 to 12.1.5** state that there is not a statistically significant difference between strategic control regarding the following **age strata**, less than 2 years (P12.1.1), 4 to 10 years (P12.1.2), 11 to 20 years (P12.1.3), 21 to 50 years (P12.1.4) , and over 50 years (P12.1.5).

A statistically significant variation **does not** exist between strategic control regarding the stated age strata: The **Propositions P12.1.1, Proposition P12.1.2, Proposition P12.1.3, Proposition P12.1.4, Proposition P12.1.5, are accepted**.

The results show that the different age levels of a business do not have any significant impact on the practice of strategic control.

**Propositions 12.2.1 to 12.2.5** stated that a statistically significant difference does not exist between strategic control regarding the following **duration of listing** strata: less than 2 years (P12.2.1); 4 to 10 years (P12.2.2); 11 to 20 years (P12.2.3); 21 to 50 years (P12.2.4); and over 50 years (P12.2.5).

Since **Proposition 12.2** was accepted, the sub propositions **P12.2.1: to P12.2.5** are also not significant and are therefore **accepted**.

**Propositions 12.3.1 to 12.3.6** stated that a significant variance does not exist between strategic control regarding the following **full-time employee** strata: 0 - 200 (P12.3.1); 201 - 500 (P12.3.2); 501 - 1000 (P12.3.3); 1001 - 2000 (P12.3.4); 2001 - 5000 (P12.3.5); over 5000 (P12.3.6). Based on the acceptance of the primary proposition P12.3, the sub propositions are **all accepted**.

None of the different full-time employee strata have any significant effect on the practice of strategic control. A business's employee size does not have a role to play in the practice of strategic control.

The acceptance of P12.4 above implies that the **sub-propositions P12.4.1 to P12.4.7**, which stated that a statistically significant difference does not exist between strategic control regarding the following **gross income strata**: 0 - 50 million rands (P12.4.1); 51 - 100 million rands (P12.4.2); 101 - 500 million rands (P12.4.3); 501 - 1 billion rands (P12.4.4); 5 billion rands (P12.4.5); 5.1 - 10 billion rands (P12.4.6); over 10 billion rands (P12.4.7), **are all accepted**.

**Proposition 12.5.1 to 12.5.8** stated that a statistically significant variation does not exist between business strategic control regarding the following gross asset value strata: 0 - R20 million rands (P12.5.1); 21 - 50 million rands (P12.5.2); 51 - 100 million rands (P12.5.3); 101 - 500 million rands (P12.5.4); 501 - 1 billion rands (P12.5.5); 1.1 - 5 billion rands (P12.5.6); 5.1 - 10 billion rands (P12.5.7); over 10 billion rands (P12.5.8). A statistically significant difference between the different strata does not exist and therefore the following propositions, **Proposition P12.5.1, Proposition P12.5.2, Proposition P12.5.3, Proposition P12.5.4, Proposition P12.5.5, Proposition P12.5.6, Proposition P12.5.7, Proposition P12.5.8, are all accepted**.

### **7.5.3 Entrepreneurial orientation factor analysis of variance (ANOVA)**

An analysis of variance was done on the entrepreneurial orientation factor and the results are reflected in Table 7.11.4.

**Table 7.11.4 Overall ANOVA for entrepreneurial orientation factor**

Source of Variation	D.F	Sum of squares	Mean square	F Value	P-Value
Between all Groups	26	13.66879790	0.52572300	1.30	0.1639
Within Groups	165	22.9790	0.40418298		
Total	191	80.35898920			

The p-value of 0.1639 is greater  $> \alpha = 0.05$  as reflected in Table 7.11.4 above, and shows that there **is not** a statistically significant difference in entrepreneurial orientation between one or more of the different business categories: age; duration of listing; number of employees; gross income per annum; and gross asset value.

The result reflected in Table 7.11.4 does indicate that the individual means are different from the consensus value. A more detailed ANOVA to measure the significance of that variation is shown in Table 7.11.4.1.

The finding in Table 7.11.4.1 that the source variables' p values are greater than  $> \alpha = 0.05$  shows that **there is not** a statistically significant difference between the factor entrepreneurial orientation and its source variables and therefore all analysis of variance propositions based on this variation should be accepted.

There **is not** a statistically significant difference in entrepreneurial orientation with regard to the variables: age (0.5208); duration of listing (0.83690); number of full-time employees (0.5004); and gross income (0.0515); or gross asset value (0.0537), because the variables p values' are greater than  $> \alpha = 0.05$ .

**Table 7.11.4.1 ANOVA: between entrepreneurial orientation (EO) and biographic variables**

Proposition	Variable	D.F	Mean square	F Value	P-Value
P13.1 (EO Vs age)	Age (V 2)	4	0.32725767	0.81	0.5206
P13.2 (EO Vs duration of listing)	Duration of listing (V 3)	4	0.14546821	0.36	0.8369
P13.3 (EO Vs f-time employees)	Full-time employees (V 74)	5	0.35298031	0.87	0.5004
P13.4 (EO Vs gross income)	Gross income (V 75)	6	0.86460985	2.14	0.0515
P13.5 (EO Vs gross asset value)	Gross asset value (V 76)	7	0.82199154	2.03	0.0537

Applying the p- value acceptance rule that one should accept the proposition only if p- value is bigger than  $> \alpha = \text{alpha}$ , the propositions P13.1 to P13.5, which state that there is no significant statistical difference between entrepreneurial orientation and each of the following variables, age (**P13.1**); duration of operation (**P13.2**); number of full-time employees (**P13.3**); gross income per annum (**P13.4**); and gross asset value (**P13.5**), **are all accepted**.

The implication of the above results is that a businesses' entrepreneurial orientation is not significantly determined by:

- age
- duration of listing



- number of full-time employees
- gross income per annum or
- gross asset value.

The result implies that the different age levels do not impact on / influence the entrepreneurial orientation of a business. Whether a business has been operating for a short period, such as less than two years, or for many years, such as over 50 years, its entrepreneurial orientation may be the same.

The acceptance of the above propositions shows that the period a business has been listed at the stock exchange does not necessarily have an effect on how entrepreneurial that business will be. Businesses that have been listed for short periods (for example less than 2 years) can be as entrepreneurial as those that have been listed for long periods, such as over 50 years.

The results also show that variations in gross income levels do not significantly affect a business's entrepreneurial orientation. A business's entrepreneurial orientation is therefore not influenced by its gross income amounts, or by size, if gross income is used as a measure of size. This result differs from the literature if the number of employees and gross asset value are used as measures of business size, in that small businesses are assumed to be more entrepreneurial than bigger businesses (Jennings, 1994:187). This is due mainly to the fact that large businesses' bureaucratic structures are believed to stifle innovation.

The number of employees in a business does not have a significant effect on how entrepreneurial a business is. Since the number of employees is used as a measure of the size of a business, this means that small businesses (measured by employee numbers) and big businesses are not different in terms of how entrepreneurial they are or can be.

As with the full-time employee variable, gross asset value is used as a measure of business size. The result that there **is not** a statistically significant difference between the different gross asset values is consistent with the finding for employees as a size measure. The gross asset value a business possesses has no significant role to play in determining the entrepreneurial orientation of a business.

As a result of the acceptance of the above propositions, the **sub propositions**, which stated that there was a variation between entrepreneurial orientation and specified strata of the following variables; age (P13.1.1-P13.1.5); duration of listing (P13.2.1-P13.2.5); number of full-time employees (P13.3.1-P13.3.6); gross income (P13.4.1-P13.4.7); and gross asset value (P13.5.1-P13.5.8), are also **all accepted**. Through the deductive analytical method, if the variable, age does not significantly affect a business's entrepreneurial orientation, it follows that the different age strata will not significantly affect entrepreneurial orientation. As the proposition P13.1 was **accepted**, the sub-propositions, **Proposition P13.1.1, Proposition P13.1.2, Proposition P13.1.3, Proposition P13.1.4, Proposition P13.1.5, are all accepted.**

Applying the same deductive method, **Propositions 13.2.1 to 13.2.5**, which state that there is not a statistically significant difference between entrepreneurial orientation regarding the following **duration of listing strata**, less than 2 years (P13.2.1), 4 to 10 years (P13.2.2), 11 to 20 years (P13.2.3), 21 to 50 years (P13.2.4) and over 50 years (P13.2.5), **Proposition P13.2.1, Proposition P13.2.2, Proposition P13.2.3, Proposition P13.2.4, Proposition P13.2.5, are accepted.**

Similarly, **Propositions 13.3.1 to 13.3.6**, which stated that a significant variance does not exist between entrepreneurial orientation regarding the **number of full-time employees strata**: 0 - 200 (P13.3.1), 201 - 500 (P13.3.2), 501 - 1000 (P13.3.3), 1001 - 2000 (P13.3.4), 2001 - 5000 (P13.3.5) and over 5000 (P13.3.6) are **accepted** based on the acceptance of Proposition 13.3.

The acceptance of P13.4 above implies that the sub **Propositions 13.4.1 to 13.4.7** which suggest that a significant difference does not exist between **entrepreneurial orientation** regarding the **gross income** strata 0 - 50 million rands (P13.4.1), 51 - 100 million rands (P13.4.2), 101 - 500 million rands (P13.4.3), 501 - 1 billion rands (P13.4.4), 1.1 - 5 billion rands (P13.4.5), 5.1 - 10 billion rands (P13.4.6) and over 10 billion rands (P13.4.7) are all **accepted**.

**Propositions 13.5.1 to 13.5.8** stated that a significant variation does not exist between a businesses' entrepreneurial orientation regarding the following **gross asset value** strata; 0 - R20 million rands, (P13.5.1) 21- 50 million rands (P13.5.2), 51 - 100 million rands (P13.5.3), 101 - 500 million rands (P13.5.4), 501 - 1 billion rands (P13.5.5), 1.1 - 5 billion rands

(P13.5.6), 5.1 - 10 billion rands, (P13.5.7), over 10 billion rands (P13.5.8). The **propositions 13.5.1 to 13.5.8** are **accepted** because a statistically significant variation does **not** exist between the gross asset value strata regarding entrepreneurial orientation, based on the acceptance of the main proposition P13.5.

#### 7.5.4 New product introduction factor analysis of variance (ANOVA)

An analysis of variance was carried out on the new product introduction factor and its source variables and the results are shown in Table 7.11.5.

**Table 7.11.5 Overall ANOVA for the new product introduction factor**

Source of Variation	D.F	Sum of squares	Mean square	F Value	P-Value
Between all Groups	26	27.60591179	1.06176584	2.25	0.0014 ***
Within Groups	138	65.10078443	0.40418298		
Total	164	92.70669621			

\*\*\* indicates a statistically significant difference at  $\alpha = 0.05$  level

As reflected in Table 7.11.5 the p-value of 0.0014 is not greater than  $< \alpha = 0.05$  and this shows that some variation does exist between the introduction of new products factor and one or more variables.

The above result does not, however, indicate which individual mean or means are different from the consensus value and in what direction they deviate. A more detailed ANOVA was carried out to measure the statistical significance (strength) of the difference and this is reflected in Table 7.11.5.1.

**Table 7.11.5.1 ANOVA: between new product introduction (NP) and biographic variables**

Proposition	Variable	D.F	Mean square	F Value	P-Value
P14.1 (NP Vs age)	Age (V 2)	4	0.56960849	1.21	0.3105
P14.2 (NP Vs duration of listing)	Duration of listing (V 3)	4	0.67083046	1.42	0.2299
P14.3 (NP Vs f-time employees)	Full-time employees (V 74)	5	0.78363795	1.66	0.1480
P14.4 (NP Vs gross income)	Gross income (V75)	6	0.73473149	1.56	0.1641
P14.5 (NP Vs gross asset value)	Gross asset value (V 76)	7	1.12207415	2.38	0.0251 ***

\*\*\* indicates a statistically significant difference at  $\alpha = 0.05$  level

The measure of significance (strength) of this variance in Table 7.11.5.1 shows that there **is** a statistically significant variation between **new product introduction** and **gross asset value** (0.0251) tested at  $\alpha = 0.05$  level. Though a variation exists between new product introduction and the following variables; age (0.3105); duration of listing (0.2299); number of full-time employees (0.1480); and gross income (0.1641), the variation **is not** statistically significant. A variation is significant if the calculated p value is smaller than  $< \alpha = 0.05$ . As shown in Table 7.11.5.1, only the gross asset value of 0.0251 is less  $< \alpha = 0.05$ .

**Proposition P14** states that there is not a statistically significant variation between a business's introduction of new products and each of the following variables: age, duration of listing, number of full-time employees, gross income per annum and gross asset value. A significant variation was only found between new product introduction and gross asset value (P14.5). No statistically significant variance was found between new product introduction and the other variables above and therefore the following proposals are **accepted**:

**Proposition P14.1** (age): **accepted**

**Proposition P14.2** (duration of listing): **accepted**

**Proposition P14.3** (number of full-time employees): **accepted**

**Proposition P14.4** (gross income per annum): **accepted**

**Proposition P14.5** (gross asset value): **rejected**

Since a statistically significant variation was found only between new product introduction and gross asset value (P14.5), this implies that gross asset values of a business play a role in new product introduction. A more detailed analysis, Scheffe's Test, was carried out. The results imply that;

- age **does not** play a statistically significant role in a business's new product introduction
- the duration of listing **does not** statistically significantly influence a business's new product introduction
- **number of full-time employees** and also **gross income** per annum amounts **do not** have any statistically significant impact on a business's new product introduction.

The result on age (P14.1) implies that the different age levels do not impact on/ influence new product introduction in a significantly different way. Whether a business has been operating for a few years or for many years, the new product introduction propensity can be the same.

The acceptance of the duration of listing proposition (P14.2) shows that the period a business has been listed on the stock exchange does not have a significant effect on new product introduction. Businesses that have been listed for short periods (less than 2 years) can have the same new product introduction propensity as those that have been listed for longer periods.

The number of employees (P14.3) in a business does not have a significant effect on a business's new product introduction. This implies that businesses with few full-time employees can introduce new products in the same way as those with large numbers of full-time employees. The number of full-time employees is not a discriminant variable of new product introduction. This also implies that big and small businesses can equally introduce new products, (if number of employees is used as a measure of size).

The different gross income levels (P14.4) do not play a significant role in a business's propensity to introducing new products. Businesses with different income levels can all introduce new products without income level being an important determining factor.

The acceptance of the propositions **P14.1; P14.2; P14.3 and P14.4** imply that the sub propositions based on them can also safely be accepted as not statistically significant, since no further tests were carried out on them.

The findings on the new product introduction sub propositions are summarised below.

**Propositions 14.1.1 to 14.1.5**, stating that a statistically significant variation does not exist between new product introduction regarding the different age strata **are accepted**:

**Proposition 14.2.1 to 14.2.5**, which state that there is not a statistically significant difference between new product introduction regarding the **duration of listing** strata **are all accepted**.

Based on the acceptance of Proposition 14.3, **Propositions 14.3.1 to 14.3.6**, which state that a statistically significant difference does not exist between new product introduction regarding the given number of full-time employees' strata, **are accepted**.

The acceptance of P14.4 above leads to the acceptance of **Propositions P14.4.1 to P14.4.7, which are all accepted**.

Since a statistically significant variation was found only between new product introduction and a business's gross asset value, **Proposition P14.5 was rejected**. A further analysis of the rejected proposition to mitigate against Type 1 Error (where a true hypothesis is wrongly rejected) was done. Comparisons are further carried out using the Scheffe's test, to find which

ranges within the variable are the main sources of the differences with the factor **new product introduction** as shown in Table 7.11.5.2.

**Table 7.11.5.2 Scheffe’s comparison between gross asset value and new product introduction factor at  $\alpha = 0.05$  significant level**

Gross asset value stratification	Difference between Means	Simultaneous 95% confidence limits		
<b>8 &lt; 7</b>	0.1747	-0.5199	0.8693	
<b>8 &lt; 5</b>	0.5071	-0.1053	1.1195	
<b>8 &lt; 3</b>	0.6955	0.0775	1.3135	***
<b>8 &lt; 2</b>	0.9003	0.2177	1.5830	***
<b>5 &lt; 2</b>	0.3933	-0.2661	1.0527	
<b>3 &lt; 8</b>	-0.6955	-1.3135	-0.0775	***
<b>3 &lt; 7</b>	-0.5208	-1.1976	0.1560	
<b>3 &lt; 2</b>	0.2048	-0.4598	0.8694	
<b>2 &lt; 8</b>	-0.9003	-1.5830	-0.2177	***
<b>2 &lt; 7</b>	-0.7256	-1.4620	0.0107	
<b>2 &lt; 3</b>	-0.2048	-0.8694	0.4598	
<p><b>1 = 0 – R20mill; 2 = R21mill – R50mill; 3 = R51mill – R100mill; 4 = R101mill – R500mill; 5 = R501mill – R1bill; 6 = R1.1bill – R5bill; 7 = R5.1 – R10bill; 8 = over R10bill. R = Rands; mill = million; bill = billion.</b></p>				

\*\*\* indicates a statistically significant difference at  $\alpha = 0.05$  level

The results from the Scheffe’s test show that those groups of businesses with gross asset values of between R51 to R100 million and those with gross asset values of R21 million to R50 million have a significant variation from gross asset values of over 10 billion rands regarding the factor **new product introduction** as shown in Table 7.11.5.2.

The findings are that a statistically significant variance **does exist** between the gross asset value strata over R10 billion and strata R21 million to R50 million (**8 < 2**) and R51 million to R100 million (**8 < 3**) regarding new product introduction.

A statistically significant variation **does not** exist between the over R10 billion strata, and the following gross asset value strata 0 - R20 million rands (P14.5.1); 101 - 500 million rands (P14.5.4); 501 - 1 billion rands (P14.5.5); 1.1bill - 5 billion rands (P14.5.6); 5.1 - 10 billion rands (P14.5.7).

**Propositions 14.5.1 to 14.5.8** state that a statistically significant variation does not exist between new product introduction regarding the following gross asset value strata: 0 - R20mil (**P14.5.1**); R21mill - R50mill (**P14.5.2**); R51mill - R100mill (**P14.5.3**); R101mill - R500mill (**P14.5.4**); R501mill - R1bill (**P14.5.5**); R1.1bill - R5bill (**P14.5.6**); R5.1 - R10bill (**P14.5.7**); over R10bill (**P14.5.8**). The results are summarised below.

***Proposition P14.5.1: accepted.***

***Proposition P14.5.2: rejected***

***Proposition P14.5.3: rejected***

***Proposition P14.5.4: accepted***

***Proposition P14.5.5: accepted***

***Proposition P14.5.6: accepted***

***Proposition P14.5.7: accepted***

***Proposition P14.5.8: rejected***

The above results show that businesses whose gross asset value are over R10 billion, and from R21 million to R50 million and R51 million to R100 million have an effect on a business's propensity to introduce new product introduction. These are businesses whose asset values are between R21 million rands and R100 million rands, and those whose gross asset values are over R10 billion rands. Businesses whose asset values are below R20 million and those whose asset values are between R101 million rands and R10 billion do not have a statistically significant effect on the new product introduction factor.

This shows that businesses which have relatively smaller asset values and those with the highest (both extremes) significantly affect new product introduction.



**7.5.5 Performance factor analysis of variance (ANOVA)**

The overall analysis of variance (ANOVA) for the performance factor is shown in Table 7.11.6.

**Table 7.11.6 Overall ANOVA for performance factor**

Source of Variation	D.F	Sum of squares	Mean square	F Value	P-Value
Between all Groups	26	39.8048848	1.5309571	1.74	0.0203 ***
Within Groups	168	147.9672433	0.8807574		
Total	194	187.7721281			

\*\*\* indicates a statistically significant difference at  $\alpha = 0.05$  level

The results show that a variation **does exist** between the performance factor and one or more variables, as reflected by a p- value of 0.0203 that is not greater than  $< \alpha = 0.05$ .

The result reflected in Table 7.11.6 does not, however, indicate which individual mean or means are different from the consensus value and in what direction they deviate. Therefore a more detailed ANOVA was done to examine the difference between each pair of means to determine the source of the significant variation. The results are reflected in Table 7.11.6.1.

**Table 7.11.6.1 ANOVA: between performance factor (P) and biographical variables**

Proposition	Variable	D.F	Mean square	F Value	P-Value
P15.1 (P Vs age)	Age (V 2)	4	0.36553348	0.42	0.7977
P15.2 (P Vs duration of listing)	Duration of listing (V 3)	4	0.08909871	0.10	0.9819
P15.3 (P Vs f-time employees)	Full-time employees (V 74)	5	0.41847164	0.48	0.7945
P15.4 (P Vs gross income)	Gross income (V 75)	6	2.20659902	2.51	0.0239 ***
P15.5 (P Vs gross asset value)	Gross asset value (V 76)	7	0.54743593	0.62	0.7376

\*\*\* indicates a statistically significant difference at  $\alpha = 0.05$  level

The measure of significance (strength) of this difference shows that there is a statistically significant variance between the **performance factor** and **gross income value** (0.0239) tested at  $\alpha = 0.05$  level. Differences exist between business performance and the following variables: duration of operations (0.7977), rewarding of employees (0.9819), number of full-time employees (0.7945) and gross asset value (0.7376), as shown in Table 7.11.6.1 above, but the difference is not significant. A variance is significant only if the calculated p- value is smaller than  $< \alpha = 0.05$  alpha.

Applying the p-value acceptance rule that one should accept the proposition only if p- value is greater than  $\alpha$  alpha, the propositions that there is not a significant statistical variance between business performance and each of the following variables: age (P15.1), duration of

listing (P15.2), number of full-time employees (P15.3) and gross asset value (P15.5) are accepted.

**Proposition P15.4** (gross income) is **rejected** because, as reflected in Table 7.11.6.1 above, there **is** a significant statistical difference between performance and a business’s gross income per annum, since the p-value (0.0239) is not greater than  $\alpha = 0.05$ .

Results are summarised below.

**Proposition P15.1: accepted**

**Proposition P15.2: accepted**

**Proposition P15.3: accepted**

**Proposition P15.4: rejected**

**Proposition P15.5: accepted**

The above results mean that the variables: age, duration of listing, number of full-time employees, gross asset value **do not** have a significant influence on a business’s financial performance, while gross income per annum does. The effect of gross income is not surprising, given the fact that it is the denominator of almost all financial performance measurements. This variable **gross income (P15.4)** is tested further using Scheffe’s test.

In order to control Type 1 Error (where a true hypothesis is wrongly rejected) a further analysis, Scheffe’s studentised range test, was carried out. This examines the difference between each pair of means and indicates significantly different stratification group means at a specified alpha level, in this case at  $\alpha = 0.05$ .

The results of the test are shown in Table 7.11.6.2.

**Table 7.11.6.2 Scheffe’s comparison between performance factor and gross income strata at  $\alpha = 0.05$  significant level**

Gross income stratification	Difference between Means	Simultaneous 95% Confidence limits	
<b>3 &lt; 7</b>	0.2000	-0.5175	0.9176
<b>3 &lt; 6</b>	0.2522	-0.4842	0.9885
<b>3 &lt; 5</b>	0.4263	-0.2749	1.1275

University of Pretoria etd – Dhlwayo, S (2007)

3 < 4	0.4315	-0.2776	1.1406	
3 < 2	0.6854	-0.0238	1.3945	
Gross income stratification	Difference between Means	Simultaneous 95% Confidence limits		
3 < 1	1.2606	0.5738	1.9473	***
7 < 3	-0.2000	-0.9176	0.5175	
7 < 6	0.0522	-0.7571	0.8614	
7 < 5	0.2263	-0.5511	1.0037	
7 < 4	0.2315	-0.5531	1.0160	
7 < 2	0.4853	-0.2992	1.2699	
7 < 1	1.0605	0.2962	1.8249	***
6 < 3	-0.2522	-0.9885	0.4842	
6 < 7	-0.0522	-0.8614	0.7571	
6 < 5	0.1741	-0.6206	0.9689	
6 < 4	0.1793	-0.6224	0.9811	
6 < 2	0.4332	-0.3686	1.2349	
6 < 1	1.0084	0.2264	1.7904	***
5 < 3	-0.4263	-1.1275	0.2749	
5 < 7	-0.2263	-1.0037	0.5511	
5 < 6	-0.1741	-0.9689	0.6206	
5 < 4	0.0052	-0.7644	0.7748	
5 < 2	0.2590	-0.5105	1.0286	
5 < 1	0.8342	0.0852	1.5833	***
4 < 3	-0.4315	-1.1406	0.2776	
4 < 7	-0.2315	-0.9811	0.5531	
4 < 6	-0.1793	-0.7748	0.6224	
4 < 5	-0.0052	-0.5230	0.7644	
4 < 2	0.2538	-0.5230	1.0307	
4 < 1	0.8291	0.0726	1.5855	***
2 < 3	-0.6854	-1.3945	0.0238	
2 < 7	-0.4853	-1.2699	0.2992	
2 < 6	-0.4332	-1.2349	0.3686	
2 < 5	-0.2590	-1.0286	0.5105	

<b>2 &lt; 4</b>	0.2538	-1.0307	0.5230	
<b>2 &lt; 1</b>	0.5752	-0.1812	1.3317	
Gross income stratification	Difference between means	Simultaneous 95% confidence limits		
<b>1 &lt; 3</b>	-1.2606	-1.9473	-0.5738	***
<b>1 &lt; 7</b>	-1.0605	-1.8249	-0.2962	***
<b>1 &lt; 6</b>	-1.0084	-1.7904	-0.2264	***
<b>1 &lt; 5</b>	-0.8342	-1.5833	-0.0852	***
<b>1 &lt; 4</b>	-0.8291	-1.5855	-0.0726	***
<b>1 &lt; 2</b>	-0.5752	-1.3317	0.1812	
<p><b>1</b> = 0 – R50mill; <b>2</b> = R51mill – R100mill; <b>3</b> = R101mill – R500mill; <b>4</b> = R501mill – R1bill; <b>5</b> = R1.1bill – R5bill; <b>6</b> = R5.1bill – R10bill; <b>7</b> = over R10bill. R = Rands; mill = million; bill = billion.</p>				

\*\*\* indicates a statistically significant difference at  $\alpha = 0.05$  level

The results from the Scheffe's test show that those groups of businesses with gross income values of R0 to R50 million is statistically significantly different with all the gross asset value stratas, save for the R51 million to R100 million strata (**P15.4.2**) as shown in Table 7.11.6.2.

**Propositions 15.4.1 to 15.4.7** state that a statistically significant difference does not exist between financial performance in terms of the following gross income strata, 0 - 50 million rands (P15.4.1); 51 - 100 million rands (P15.4.2); 101 - 500 million rands (P15.4.3); 501-1 billion rands (P15.4.4), 1.1 - 5 billion rands (P15.4.5), 5.1 - 10 billion rands (P15.4.6); over 10 billion rands (P15.4.7). As shown in Table 7.11.6.2, the gross income value stratum 0 - R50 million (P15.4.1) is statistically significantly different from strata 101 - 500 million rands (P15.4.3) **1 > 3**; 501 - 1 billion rands (P15.4.4) **1 > 4**; 1.1 - 5 billion rands (P15.4.5) **1 > 5**; 5.1 - 10 billion rands (P15.4.6) **1 > 6**; and over 10 billion rands (P15.4.7) **1 > 7**, regarding the performance factor.

The only stratum with which the 0 - 50 million rands is not statistically significant is the 51-100 million rands stratum (**P15.4.2**). *The results are summarised below.*

***Proposition P15.4.1: - rejected***

***Proposition P15.4.2: - accepted***

***Proposition P15.4.3: - rejected***

***Proposition P15.4.4: - rejected***

***Proposition P15.4.5: - rejected***

***Proposition P15.4.6: - rejected***

***Proposition P15.4.7: - rejected***

The result shows that the different gross income levels do significantly affect business performance, except for the income level, 51- 100 million rands (P15.4.2). No reasons can be suggested for this finding.

***The acceptance of proposition P15.4.2 does not indicate that the proposition P15.4 was wrongly rejected.***

Each of the following ***Propositions, P15.1; P15.2; P15.3 and P15.5 which were accepted*** will each be discussed briefly together with the sub-propositions. The acceptance of these propositions implies by deduction that the sub-propositions, which stated that a significant variation did not exist between the following strata: age (***P15.1.1 - P15.1.5***), duration of listing (***P15.2.1 - P15.2.5***), number of full-time employees (***P15.3.1 - P15.3.6***) and gross asset value, (***P15.5.1 - P15.5.8***) ***are also all accepted.***

The acceptance of **Proposition P15.1**, which stated that there is not a statistically significant variance between performance and age, also implies the acceptance of ***Propositions 15.1.1 to 15.1.5***. These state that there is not a statistically significant variance between performance and the different ***age strata***.

A statistically significant difference does **not** exist between financial performance regarding the different age strata. Therefore ***Proposition P15.1.1, Proposition P15.1.2, Proposition P15.1.3, Proposition P15.1.4, and Proposition P15.1.5, are accepted.***

The results show that age and the different age levels do not have any significant impact on financial performance. The financial performance of businesses is not dependant on how old the business is.

**Propositions 15.2.1 to 15.2.5** state that a statistically significant variance does not exist between strategic control regarding **duration of listing** strata: less than 2 years (P15.2.1) , 4 to 10 years (P15.2.2) , 11 to 20 years (P15.2.3), 21 to 50 years (P15.2.4), and over 50 years (P15.2.5). **Proposition P15.2.1, Proposition P15.2.2, Proposition P15.2.3, Proposition P15.2.4, and Proposition P15.2.5, are therefore accepted.**

The period that a business has been listed does not determine the financial performance of a business. This implies that newly listed businesses and those listed for other periods can financially perform the same, without being significantly influenced by the period of listing.

**Propositions 15.3.1 to 15.3.6** state that a statistically significant difference does not exist between financial performance regarding the number of full-time employees: strata 0 - 200 (P15.3.1), 201 - 500 (P15.3.2), 501 - 1000 (P15.3.3), 1001 - 2000 (P15.3.4), 2001 - 5000 (P15.3.5), over 5000 (P15.3.6) The following propositions, **Proposition P15.3.1, Proposition P15.3.2, Proposition P15.3.3, Proposition P15.3.4, Proposition P15.3.5, and Proposition P15.3.6 are accepted based on the acceptance of Proposition 15.3.**

The result shows that the number of full time employees in a business does not have a significant effect on performance. The number of full-time employees is not a determinant factor of how a business will perform financially. If the size of a business is measured using the number of employees, then size does not matter in business performance. Gross asset value is also used as a measure of size. As shown in the discussions of Propositions P15.5.1 to P15.5.5 below, size as measured by the gross asset value does not significantly affect performance. There is consistency between the two measures of business size as regards financial performance.

The proposition P15.5 is not statistically significant and was therefore accepted. The sub propositions of proposition P15.5 are therefore not statistically significant regarding the performance factor and are therefore accepted.

**Propositions P15.5.1 to P15.5.8** stated that a statistically significant variation does not exist between performance regarding the following gross asset value strata: 0 - R20 mil (P15.5.1); R21 mill - R50 mill (P15.5.2); R51 mill - R100 mill (P15.5.3); R101 mill - R500 mill (P15.5.4); R501 mill - R1 bill (P15.5.5); R1.1 bill - R5 bill (P15.5.6); R5.1 - R10 bill (P15.5.7); over R10 bill (P15.5.8).

The different gross asset value levels do not significantly affect business performance.

## **7.6 Managerial implications**

Managerial implications on the findings are discussed in detail and recommendations to management made.

### **7.6.1 Correlations**

The study analysed a number of correlations between factors that constitute the three constructs: strategic planning; entrepreneurial orientation; and financial performance. These correlations are revisited in order to emphasise the implications for management and businesses.

The overall observation on the correlations was that all the correlations were positive but weak.

Results show a weak correlation between strategic planning and strategic control: A strong positive relationship was expected because control is part and parcel of the strategic planning process. The implication of this result is that South African corporate management is not practising strategic planning effectively. The effective application of strategic planning implies the establishment of goals and strategies after proper analysis of both the external and internal environmental factors, establishing clear implementation schedules, measurement and corrective control measures.

If these components are not practised in their totality, then the benefits of strategic planning are lost.



- Poor strategic control implies that either the implementation plans were not properly done or were poorly effected. Either way, this result in wasted resources and the usual difficulties that comes with non-effectiveness and inefficiencies.
- Planning and control are the hallmarks of performance in that standards are set, based on trends (failure and successes), targets (visions and missions) and benchmarks (competition). If these are poorly executed, then this is a direct indictment on the quality of management and the resultant competitiveness of the business.

A weak relationship was also recorded between entrepreneurial orientation and new product introduction. From the literature review, this relationship was expected to be strong. A strong entrepreneurial orientation results in new product introduction. The weak correlation reflects a measure of awareness of the fact that an entrepreneurial orientation leads to new product introduction. This is encouraging, given the low entrepreneurial levels of South African businesses (GEM Reports). It is recommended that:

- Entrepreneurship should be promoted more within South African businesses.
- Management should be entrepreneurial, and promote entrepreneurship in businesses, taking everyone along, since new ideas come from unlikely sources.
- Entrepreneurship should be a dominant logic (Hisrich & Antoncic 2000) in business lives.
- Managers should be seen to behave entrepreneurially (Kuratko, Ireland & Hornsby 2005)

Strategic planning and entrepreneurial orientation each showed a weak, positive correlation with performance. The positive relationships are a good sign. Management should appreciate that the practice of strategic planning or that of entrepreneurship has at least a positive impact on performance. It is the authors' observation that this is a very important result for management to take heed of. This is because it is difficult, if not impossible, to isolate one activity that on its own can be said to have a strong influence on performance. It is the aggregation of a number of activities or the intensification or refinements of those activities that can result in improved performance. In order to improve performance, management should therefore:

- Improve on the quality of strategic planning (inclusive of control systems)

- Integrate strategic planning and entrepreneurship (new product introduction) in order to possibly aggregate the positivity of the relationships
- Plan performance should strategically and entrepreneurially

The author notes that the fact that the correlation is positive, though weak, at least a sign that South African businesses are making moves towards competitiveness and improved performance. Performance and competitiveness are the core accepted outcomes of strategic planning and entrepreneurship (Meyer *et. al.*, 2000; Slater & Oslon, 2000; Antoncic & Hisrich, 2004). Since the low linkages are also a reflection of the levels of the practice of strategic planning and entrepreneurial orientation, the result serves as a wake-up call to South African businesses, given the internationalisation of the global market and competitive forces. Entrepreneurial aspects such as competitive aggressiveness, (Lumpkin & Dess, 1996), edge of chaos (Eisenhardt *et. al.*, 2000), posturing (Covin & Slevin, 1991), and proactiveness (Knight, 1997), call for action and are not realised by piecemeal or token appreciation or applications.

One other disturbing observation about the correlations is that new product introduction had the second weakest correlation with all the other factors including entrepreneurial orientation, save for performance. New product introduction is an outcome of successful R & D investments, an entrepreneurial orientation (Morris and Kuratko, 2002; McGrath and MacMillan, 2000) and strategic renewal, (Guth & Ginsberg, 1990) and business learning (Senge 1996).

- New product introduction (innovation and creativity) should be vigorously pursued.

## **7.6.2 Analysis of variance (ANOVA)**

### **7.6.2.1 Strategic planning**

The practice of strategic planning was found not to significantly differ according to the period a business has been listed, the number of full-time employees a business has or its gross asset value.

The result with regard to listing shows that all businesses, irrespective of their listing periods, practise strategic planning. One might also deduce that the form of ownership is not at all related to the practice of strategic planning. This is so because listing is becoming public.

Listing is normally associated with large size, as are a businesses' number of employees and its gross asset value. The result shows managers that size does not matter. All businesses should and do practise strategic planning.

The study show that businesses aged less than 2 years significantly differed from the other age groups when it came to strategic planning. This result shows that strategic planning consciously does take place in the business's infancy but tends to die down or occupy a low profile with time. Whether with time the business is preoccupied with operational planning or implementation, the author's interpretation of this is that this shows a lack of the institutionalisation of planning. A lack, or poor application, of strategic planning is noted by Stonehouse and Pemberton (2002) and Drejer (2004). Failure to institutionalise strategic planning and entrepreneurship will negatively affect business renewal. Managers are therefore advised to:

- Apply strategic planning properly if they are to derive the maximum benefits that it provides.
- Treat operational plans as part of the operationalisation of strategic plans (Kuratko & Hodgetts 1992).

#### **7.6.2.2 Strategic control**

The strategic control factor's findings show that age, duration of listing, number of full-time employees, gross income and gross asset values do not significantly affect strategic control. This finding supports the above discussion that all businesses, irrespective of size (whatever the measurement of size), should religiously apply strategic planning in order to derive the benefits.

#### **7.6.2.3 Entrepreneurial orientation**

The finding that a business's entrepreneurial orientation is not significantly affected by either age, duration of listing, number of employees, gross income levels and gross asset value

relates roughly to age and business size. The deductions and implications for management can be summarised as follows:

- Newly established / listed businesses can be as entrepreneurial as those that have been operating for long periods of time. Being entrepreneurial cannot be equated to the experience curve or to business life cycles (aspects that are related to time or age of business)
- Managers of new or old businesses should not use age or size as an excuse for not being entrepreneurial
- All businesses should be entrepreneurial, considering that they are competing in the same dynamic environment.

#### **7.6.2.4 New product introduction**

The finding that businesses with lower gross asset values play a more significant role in product introduction implies that if businesses become large, the need for corporate entrepreneurship becomes imperative. This is because corporate entrepreneurship promotes the creation of new ventures which then are smaller in asset value and more agile and creative. Managers especially of large businesses (large in asset value) should understand and practise corporate entrepreneurship because it promotes new venture creation (venturing). Venturing in itself is a form of new product introduction. Managers should try to introduce as many new products as possible, as the benefits of new product introduction are well documented. These include first mover advantages.

The fact that the other factors (age, listing duration, employee numbers and income) do not significantly affect new product introduction is very important, in that age (operations or listing) and size (employee numbers, income volumes) should not be used as reasons for limiting new product introduction. All businesses, irrespective of these factors have the same propensity to introduce new products and be competitive.

#### **7.6.2.5 Performance**

Age, listing, number of employees and asset values variables were found not significantly to affect financial performance. This means that young and old businesses, newly listed or listed for a long time, can perform equally. Businesses of different employee sizes and asset values

can also financially perform equally. Managers should develop a competitive mindset and be prepared to compete or “take on” businesses of all ages, employee sizes, and asset values. The gross income variable was found to significantly affect business performance. This is expected, since income is the denominator of financial performance. Managers should always be aware that the customer, or market, is the route to the bottom line. The best way to generate income is through entrepreneurial planning how to best create customer value and to deliver it in a strategic, entrepreneurial way. A strategic entrepreneurial mindset is what will drive managers to create value.

### **7.7 Chapter summary**

In conclusion, a positive correlation was found between strategic planning and the following factors: strategic control; entrepreneurial orientation; new product introduction; and performance. However, this relationship is weak and so statistically insignificant.

In variance analysis, it was found that duration of listing, number of full-time employees and gross income do not have a significant effect on strategic planning, while age and gross asset value do. Age and gross asset value variables were found to significantly influence strategic planning.

Age, duration of listing, number of full-time employees, gross income and gross asset value were found not to have a significant effect on strategic control. The same variables were also found not to have any significant effects on a business’s entrepreneurial orientation.

New product introduction was found not to be significantly affected by age, duration of listing, number of full-time employees or gross income. It is significantly influenced only by gross asset value. The asset value levels that are significant are those over R10 billion.

The performance factor was found to be statistically significant with the gross income variable. The income level 0 – 50 million rands category was found to have a significant influence on all the other income categories. The other variables: age; duration of listing; number of full-time employees; and gross asset values were found not to be significant with regard to the performance factor.

Managers are advised to practise strategic planning and entrepreneurship to enable them to be competitive in today's dynamic world. Strategic entrepreneurial orientation should be a business's dominant logic in order to keep the business on a competitive focus.

## Chapter 8

### Conclusions and Recommendations

*Victory is the main objective of war. If this is long delayed, weapons are blunted and morale depressed. For there has never been a protracted war in which a country has benefited.*

*McNeilly 1996:29*

#### 8.1 Introduction

This chapter discusses the implications of the findings of the research as presented in the previous chapter. Conclusions are then drawn from the evidence and recommendations made.

#### 8.2 Conclusions and recommendations

The study aimed to find out the relationship between the practice of strategic planning and corporate entrepreneurship. The study incorporated the two separate constructs, strategic planning and entrepreneurial orientation and tested the prevalence of these in South African public businesses. These were tested against business performance. In the final analysis strategic planning was represented by two factors: planning and strategic control, while entrepreneurship was also represented by two factors, new product introduction and entrepreneurial orientation. The effects of strategic planning and corporate entrepreneurship were tested against the performance factor. The correlations were weak but positive.

The results show that South African businesses practise strategic planning and also practise corporate entrepreneurship. It is recommended that South African public businesses be encouraged to practise strategic planning and entrepreneurship because of the benefits that can be derived, as discussed in the literature. The results of this study show that there is a weak relationship between those businesses that practise strategic planning and those that practise entrepreneurship. The fact that there is a weak relationship between the practice of strategic planning and entrepreneurship implies the absence of a combined practice of

strategic planning and entrepreneurship, that is, the absence of entrepreneurial strategic planning. The practice of strategic entrepreneurship or entrepreneurial strategic planning is strongly to be encouraged.

### **8.3 Strategic planning**

The results show that those businesses that have been listed for periods of less than two years practise strategic planning more than those that have been operating for longer periods. This result needs further investigation to understand why, considering the fact that planning was not significantly related to age of operations. Reasons for the result cannot be explained by the empirical evidence or by literature.

Businesses whose gross asset values are between R501 million and R1 billion were found to be the most significant in the practice of strategic planning. This was higher than those businesses with lower asset values (R21 million to R50 million) and those with values of over R10 billion.

### **8.4 Entrepreneurial orientation**

There was no significant relationship found between entrepreneurial orientation and a businesses' age, duration of listing, number of employees, gross income and gross asset value. This basically implies that the entrepreneurial orientation of public businesses in South Africa is very low. This raises serious concerns as to the competitiveness of South African businesses, bearing in mind the importance of entrepreneurial orientation. This explains why South Africa has one of the lowest entrepreneurial orientations of those nations that were evaluated according to the GEM report. The country's rating has hardly improved since 2001, when South Africa was surveyed for the first time. The benefits of entrepreneurial orientation are well documented and South African corporations are encouraged to take entrepreneurship seriously. The advantages of corporate entrepreneurship should be promoted and taught to businesses so that they appreciate the benefits of such an orientation.



### **8.5 New product introduction**

New product introduction was found to be significantly associated with gross asset values. This implies that asset values have an effect on how businesses introduce new products. New product introduction is a key factor of corporate entrepreneurship.

The results show that those groups of businesses with gross asset values of between R51 million and R100 million and those with gross asset values of from R21 million to R50 million have a higher new product introduction propensity than those with gross asset values of over 10 billion rands. This shows that those businesses which are relatively small, measured by asset values, tend to introduce more new products than the bigger asset valued businesses.

This is supported by the literature. The smaller businesses may tend to be more energetic, be in the growth stage and suffer less from technological inertia. The literature shows that there is a need for businesses to be innovative and introduce new products for them to succeed in today's highly competitive environment. Businesses should know that size (in asset value terms) should not be a liability in entrepreneurship. This is the reason why corporate entrepreneurship is important because it basically mitigates against new product or innovativeness inertia.

### **8.6 Performance**

A significant positive relationship was recorded between performance and gross income.

The results show that those businesses in the lowest income category (between R0 and R50 million) perform better than those with higher income levels. This implies that businesses normally termed as small / medium businesses perform better than the large businesses. Gross income is a measure of the size of a business. Businesses categorised as small to medium usually also have deliberate government support and policy concessions. The fact that smaller businesses (measured by income) tend to perform better than the bigger ones supports the drive for corporate entrepreneurship, in that corporate entrepreneurship is all about starting or giving birth to smaller new businesses within the big businesses in order to reinvigorate the parent business; as pointed out by Rose and Ito (2005), this provides adaptive survival material for the parent business. South African businesses should therefore

promote corporate venturing, since both the literature and this research show that the newborn businesses perform well.

Based on this study's findings and previous research, (Kuratko & Hodgetts 1992:466), it can be concluded that strategic planning and entrepreneurial orientation contribute to improved performance.

### **8.7 Contribution of study**

The study contributes to the body of knowledge in the field, especially the integrative study of strategic planning and corporate entrepreneurship. An empirical test on the application of the two constructs might not have been carried out elsewhere before. This makes the findings very important. No such empirical research has been carried out on South African businesses, which make the results important to the performance and competitiveness of these businesses.

The study has also made its modest contribution to the very limited literature on strategic planning and corporate entrepreneurship in South Africa.

The study also managed to do a cross-cultural validation of the strategic planning instrument used by Parnell and Kargar (1996) and the Entrepreneurial Performance Index by Morris & Kuratko (2002). The same instrument, when used by Parnell and Karger, generated seven factors, namely, internal orientation, external orientation, functional coverage, involvement of key personnel, use of planning techniques, creativity in planning and focus on control, while this study generated two factors, namely strategic planning and strategic control. The instrument was cross-validated by O'Regan, and Ghobadian, (2002) in the UK study "Effective strategic planning in small and medium businesses". The reason for the results in this study might be that the two previous studies were on small and medium sized businesses, while the current study was on large (listed) businesses.

The other reason for the cross-cultural non-validation in the present study might emanate from the respondents. If the practice of strategic planning is weak or does not completely encompass all the facets covered by the American and British studies, then the author is of the view that some of the variables would be lost and fewer factors generated. This view of

poor application tends to be supported by the results of this study, which show weak relationships between inseparable aspects of strategic management, i.e. planning and control.

The Entrepreneurial Performance Index (EPI) by Morris and Kuratko had potential to generate four factors: behavioural dimensions, new product introduction, business orientation and management decision making. In this study it instead generated only two factors, new product introduction and entrepreneurial orientation. The low level of entrepreneurial orientation among South African businesses might be the reason for the generation of only two factors, rather than poor applicability of the instrument.

In exploratory and confirmatory factor analysis, effect on effectiveness and efficiencies did not emerge as a distinct dimension of the environmental construct and was not included in the model that was analysed.

### **8.8 Limitations of study**

One limitation of this study is that it covered only big businesses. It studied only JSE listed businesses, thereby excluding many other business types and sizes that are not listed. It studied only listed businesses, thereby leaving out all those that were not listed, whether they were big or small. By studying only listed businesses (public businesses), other forms of ownerships, such as private businesses, close corporations, parastatals, partnerships and sole traders were left out. Some of the businesses incorporated under these other forms of ownership have the same characteristics and challenges as those studied, and it would have been interesting to see how they fared if comparisons could have been made. The study did not delineate the different type of businesses or sectors, for example.

The study could also have considered the different industrial sectors in its study and tried to establish how entrepreneurial the different industrial sectors or divisions, such as manufacturing, retail, pharmaceuticals, are.

As earlier indicated, the research instruments would need to be tested in another setting where the strategic planning levels of businesses are the same as those in South Africa or where the level of entrepreneurial orientation can be equated to that of the country.

Wickland and Shepherd (2005:87) point out that the entrepreneurial orientation construct is one construct that has been applied in several countries and that possible differences in findings may be attributed to differences in business cultures.

The informant bias may be a limitation. The questionnaire was in most cases completed by an individual business representative and there was no testing for inter informant reliability. The senior management was selected as the key data source. Perceptual measures were used and so the perceptions of the senior manager interviewed might be specific to the informant and might be different if someone else in the business provided the data. Despite these limitations, the selected study designs and methods were appropriate for achieving the goals of this study and for making some important contributions.

The South African context of the study limits the generalisation of findings.

Future research should be directed at both the creation and advancement of corporate entrepreneurship. It is hoped that the findings presented in the dissertation will spur further research in corporate entrepreneurship, especially in South Africa as a developing country where the total entrepreneurial activity is comparatively very low.

According to Ma and Tan (2006:705) and Cooper, Markman & Niss (2000:115), the study of entrepreneurship is quite young, and the number of people teaching and researching in the field is limited. As an academic discipline the field of entrepreneurship is desperately in need of more solid theoretical work that will help strengthen its conceptual and empirical foundation, and more importantly, provide guidance for emulators so their success opportunities will be improved.

While a great deal of understanding about entrepreneurship has been achieved in the past decade, integrative approaches have been rare (Antoncic, Cardon & Hisrich 2004:174) and so integrative studies such as this one should be pursued.

South African research on corporate entrepreneurship is almost nonexistent. Scholars are therefore urged to contribute towards this discipline and assist in the development of South African businesses.