CHAPTER 5:
RESEARCH DESIGN AND METHODOLOGY OF THE STUDY

"As organisations aggressively pursue the future, managers must continually assess the actual levels of entrepreneurial activity occurring within the organisation."

Morris, *et al.* (2008:323)

5.1 INTRODUCTION

Assessing corporate entrepreneurial activities in a business forms part of the starting point to facilitate change and innovation in existing businesses. The management question that needs to be addressed is: Can corporate entrepreneurship and innovation levels be assessed in South African short-term insurance businesses?

This research is based around this management question and the most important objective of this research is to assess corporate entrepreneurial and innovative levels in South African short-term insurance businesses. To be able to address this question a literature review was necessary as well as empirical research. The literature review was dealt with in chapters 2 to 4. This chapter focuses on the research design and methodology used to address the management question.

This study made use of a formal research design to test the hypotheses formulated. This chapter presents the research problem, objectives of the study and the hypotheses. The research methodology is presented in terms of the research design strategy, sampling design, data collection and lastly data analysis and presentation. This process was illustrated in figure 1.1. The research proposal was dealt with in chapter 1 in which the research problem and questions were stated. Chapter 2, 3 and 4 dealt with the literature review. Chapter 6 will address the data analysis and presentation of results, and lastly chapter 7 will report the findings of the study.

5.2 RESEARCH PROBLEM

From the literature review (addressed in chapters 1, 3 and 4) it is evident that to develop and nurture businesses current and future competitive advantages, advantages that are grounded in innovation, businesses increasingly rely on corporate entrepreneurship. Corporate entrepreneurship represents the framework for the facilitation of ongoing change and innovation in established businesses (Morris and Kuratko, 2002). There is a significant amount of written consensus regarding corporate entrepreneurship as a means for promoting and sustaining global corporate competitiveness and economic growth. This consensus focuses mainly on international businesses and not on businesses in South Africa. The management dilemma that then exists (particularly in South Africa) is how to foster and implement corporate entrepreneurship in businesses and/or industries to sustain this competitive advantage and improve performance.

The purpose of this study is to assess the corporate entrepreneurial and innovative levels in South African short-term insurance businesses.

The management question that needs to be addressed is: Can corporate entrepreneurship and innovation levels be assessed in South African short-term insurance businesses?

From this management question the following research questions are formulated:

- Can the model of Kuratko, *et al.* (2004) for sustaining corporate entrepreneurship be applied in South African short-term insurance businesses? Will the health audit instrument (Ireland, *et al*., 2006a) be able to determine the entrepreneurial intensity and the entrepreneurial culture in South African short-term insurance businesses?
- Will it be possible, from the results of the health audit, to develop a corporate entrepreneurial development programme for South African short-term insurance businesses?
- How can a corporate entrepreneurial development programme be used to develop and sustain corporate entrepreneurship in South African short-term insurance businesses?

- How can a corporate entrepreneurial development programme be used to address the gaps between the various business unit levels in South African short-term insurance businesses?
- What will be the content of a corporate entrepreneurial development programme for South African short-term insurance businesses?

Limited empirical research is available on corporate entrepreneurship in South Africa. No formal study has been conducted in South Africa where the Health Audit of Ireland, *et al*. (2006) has been used. A few research studies did make use of the Entrepreneurial Performance Index and the Corporate Entrepreneurship Assessment Instrument individually. There is also no record of any formal research conducted on corporate entrepreneurship amongst the short-term insurance businesses in South Africa.

5.3 RESEARCH OBJECTIVES

The primary and secondary objectives of the study are presented below.

5.3.1 Primary objective

The primary objective of this research is to assess corporate entrepreneurial and innovative levels in South African short-term insurance businesses.

5.3.2 Secondary objectives

In order to achieve this primary objective, various secondary objectives are formulated. The secondary objectives of the study are:

To determine by means of a literature study:

- how entrepreneurship and corporate entrepreneurship relate to one another;
- the link between corporate entrepreneurship and innovation;
- the importance and value of corporate entrepreneurship;
- how to foster, develop and implement corporate entrepreneurship;
- how to sustain corporate entrepreneurship and innovation;

- the conceptual models that exist for corporate entrepreneurship;
- the methods for measuring entrepreneurial activity; and
- the design, content and structure of a corporate entrepreneurial development programme.

To determine by means of a case study design:

- how to assess corporate entrepreneurial and innovative levels in South African short-term insurance businesses, by means of a corporate entrepreneurial health audit instrument.

5.4 HYPOTHESES

This study stated hypotheses rather than propositions. Cooper and Schindler (2008:50), as well as Coldwell and Herbst (2004:86), refer to a proposition as a statement about concepts that may be judged as true or false if it refers to observable phenomena. When a proposition is formulated for empirical testing it is called a hypothesis. Zikmund (2003:43) also states that a proposition is a statement concerned with the relationships among concepts; an assertion of a universal connection between events that have certain properties. Babbie (2008:45) gives a more practical explanation: "Hypothesis is a specified testable expectation about empirical reality that follows from a more general proposition. It is a statement of something that ought to be observed in the real world if the theory is correct." Zikmund (2003:44) continues and agrees that a hypothesis is an unproven proposition or supposition that tentatively explains certain facts or phenomena – a proposition that is empirically testable.

The hypotheses stated in this study can be referred to as relational hypotheses. Relational hypotheses specify a relationship between two or more variables (Coldwell and Herbst, 2004:86; and Cooper and Schindler, 2008:51).

When stating hypotheses, statistical hypotheses are generally stated in the null form (Zikmund, 2003:499). The null and alternative hypotheses are further clarified. A null hypothesis (Ho) refers to a statement about a status quo asserting that any change from what has been thought to be true will be due entirely too random error. An alternative

hypothesis (Ha) is a statement indicating the opposite of the null hypothesis. Cooper and Schindler (2008:523) state that the null hypothesis is used for testing. In this regard, only the null hypothesis related to this study will be stated. The hypotheses formulated for this study was stated in chapter one. The hypotheses were seen as important by senior management in each short-term insurance business.

5.4.1 Hypothesis testing

The purpose of hypothesis testing is to determine which of the null or alternative hypotheses is correct. Zikmund (2003:500) refers to the significance level that is a critical probability in choosing between the null and alternative hypothesis. The level of significance determines the probability level that is to be considered too low to warrant support of the null hypothesis. Because no statement about a sample can be made with complete certainty, there always exist a chance that an error will be made. Researchers refer to these types of errors as Type I or Type II errors. A summary of these types of errors according to Zikumund (2003:504) is presented in table 5.1.

TABLE 5.1 Type I and Type II errors in hypotheses testing

State of null hypotheses in the population	Decision	
	Accept Ho	Reject Ho
Ho is true	Correct – no error	Type I error
Ho is false	Type II error	Correct – no error

Source: Zikmund (2003:504)

Table 5.1 indicates that the null hypothesis can be either true or false and the statistical decision will be either to accept or to reject the hypothesis. When a Type I error (α) is committed, a true null hypothesis is rejected. This means it is stated that a statistically significant difference exist when in reality one does not exist. A Type II (ß) error is made if the alternative hypothesis is true but the researcher indicates that the Ho should not be rejected.

Zikmund (2003:504) states that in business problems, Type I errors are generally more serious than Type II errors and there is a greater concern with determining the significance level alpha (α) than with determining (ß).
The hypothesis testing will be presented in chapter 6.

5.5 RESEARCH METHODOLOGY

The research methodology presented in this section focuses on the research design strategy, the methods and procedures for the collection, and measurement and analysis of data used in the study.

5.5.1 Research design strategy

According to Cooper and Schindler (2008:81), the research design is the blueprint for fulfilling objectives and answering questions. Phillips (1971:93) in Cooper and Schindler (2008:146) indicates that the research design constitutes the blueprint for collection, measurement and analysis of data.

The research is designed as a formal study. The goal of a formal research design is to test the hypotheses or answer the research questions posed (Cooper and Schindler, 2008:140). The formal study consists of a literature review and an empirical study. The literature review aims to survey the background on corporate entrepreneurship in terms of:

- the concept corporate entrepreneurship;
- the relationship between corporate entrepreneurship and innovation;
- the importance and value of corporate entrepreneurship;
- how to foster, develop and implement corporate entrepreneurship;
- sustaining corporate entrepreneurship and innovation; and
- conceptual models for corporate entrepreneurship and methods for measuring entrepreneurial activity.

The literature review provides an insight and understanding into the research problem as well as the necessary background to guide the empirical part of the study.

The empirical part of the study focuses on the assessment of corporate entrepreneurial and innovative levels in South African short-term insurance businesses. The assessment is done by means of a corporate entrepreneurial health audit instrument developed by Ireland, *et al*. (2006). The empirical method is embedded in a case study design. Cooper and Schindler (2008:153) indicate that case studies place more emphasis on a full contextual analysis of fewer events or conditions and their interrelations. In a case study the emphasis on detail provides valuable insight for problem solving, evaluation and strategy.

5.5.1.1 Purpose of the study

The purpose of the study is to make use of a corporate entrepreneurial assessment instrument, the Health Audit Instrument, developed by Ireland, *et al*. (1996), to assess the corporate entrepreneurial and innovative levels in South African short-term insurance businesses. The purpose is to develop a corporate entrepreneurial development programme that can be used to implement and foster corporate entrepreneurship in South African short term insurance businesses.

This study will also inform and provide proof to other South African businesses of the value of assessing businesses in terms of the businesses corporate entrepreneurial and innovative mindset which could assist in sustaining a competitive advantage.

5.5.1.2 Time dimension

The time dimension of the study is cross-sectional. Cooper and Schindler (2008:149) state that cross-sectional studies are carried out once and represent a snapshot of one point in time. Bryman and Bell (2007:55) agree with this explanation and also add that in a cross-sectional design relationships are examined between variables. There is no time ordering to the variables, because the data on them are collected more or less simultaneously and the researcher does not manipulate any of the variables.

5.5.1.3 Topical scope

Topical scope refers to the depth and breath of a study (Cooper and Schindler, 2008:147). In the topical scope the research can be based on statistical studies or case studies. In this study the empirical method is embedded in a case study design. Cooper and Schindler (2008:153) state that a single well designed case study can provide a major challenge to a theory and provide a source of new hypotheses and constructs simultaneously.

5.5.1.4 The research environment

Research designs differ as to whether they occur under actual environmental conditions (field conditions) or under staged or manipulated conditions (laboratory conditions) (Cooper and Schindler, 2008:150).

This research will be conducted in a field environment in the South African short-term insurance industry.

5.5.1.5 Participants perceptions

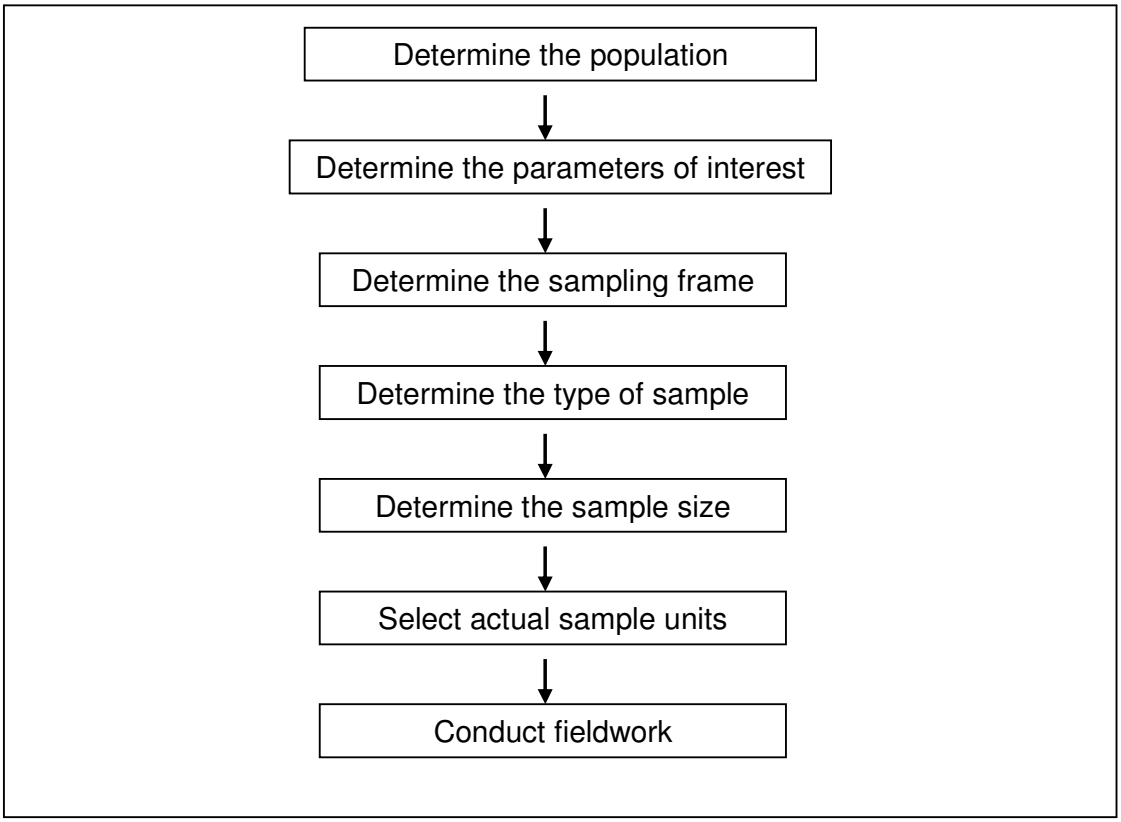
Cooper and Schindler (2008:151) emphasise that the usefulness of a design may be reduced when people in a disguised study perceive that research is being conducted. The participants in the South African short-term insurance businesses who completed the questionnaires might have perceived deviations as research-induced, as they knew research was being conducted. Cooper and Schindler (2008:151) state that participants' perceptions serve as a reminder to classify one's study by type, to examine validation strengths and weaknesses, and to be prepared to qualify results accordingly.

5.5.2 Sampling design

Zikmund (2003:369) indicates that the process of sampling involves any procedure using a small number of items or parts of the whole population to make conclusions regarding the whole population.

Before a conclusion can be made of a sample a researcher needs to make decisions on several stages in the selection of a sample. These stages are summarised in Figure 5.1, according to Cooper and Schindler (2008:183) and Zikmund (2003:372).

FIGURE 5.1 Stages in the selection of a sample



Source: Cooper and Schindler (2008:183-203) and Zikmund (2003:372)

Cooper and Schindler (2008:179); Zikmund (2003:369) and Diamantopoulos and Schlegelmilch (2000:10) refer to population as the total collection of elements about which one wishes to make some inferences. In this study the population is all the employees in the South African short-term insurance industry. The reason for selecting this population is that no research has been done in South Africa on the short-term insurance industry in terms of corporate entrepreneurship and innovation.

Parameters of interest according to Cooper and Schindler (2008:186) are summary descriptors of variables of interest in the population. For this study the parameters of interest are as follows:

- The selected employees from different short-term insurance businesses must be employed in the South African short-term insurance industry.
- The employees must be full time employees in South African short-term insurance businesses.
- The full time employees must include employees from top management level to normal workers in all the various business units across the different insurance businesses in the South African short-term insurance industry.

Sampling frame refers to a list of elements from which a sample may be drawn (Zikmund, 2003:373; Cooper and Schindler, 2008:186; Babbie, 2008:221). An e-mail list of all the qualifying employees in the South African short-term insurance is used as the sample frame for this study.

When choosing the type of sample a distinction needs to be made between a probability or non-probability sample. According to Coldwell and Herbst (2003:79), Cooper and Schindler (2008:192); Zikmund (2003:379) and Bryman and Bell (2007:182), a probability sample is a sample that has been selected using random selection so that each unit in the population has a known chance of being selected. ,A non-probability sample is a sample that has not been selected using a random selection method. It implies that some units in the population are more likely to be selected than others.

Table 5.2 gives a brief summary of the various sampling designs.

This study will make use of a non-probability purposive or judgmental sample. Saunders, Lewis and Thornhill (1997:145) state that a purposive or judgemental sample will best enable one to answer the research questions and meet one's objectives. This form of sample is often used when working with small samples, such as in case study research.

Bryman and Bell (2007:195) indicate that when it comes to sample size, the larger the better. The biggest benefit from a large sample is that as sample size increases, sampling error decreases. The sample size for this study is 1 900 which includes employees in the South African short-term insurance industry.

TABLE 5.2 Types of sampling designs

Element selection	Representation bias	
	Probability	**Non-probability**
Unrestricted	**Simple random** [Each population element has an equal chance of being selected into the sample.]	**Convenience** [The sampling procedure used to obtain those units or people most conveniently available.]
Restricted	**Systematic** [Selects an element of the population at a beginning with a random start and following the sampling fraction selects every k^{th} element.] **Cluster** [Population is divided into internally homogeneous subgroups. Some are randomly selected for further study.] **Stratified** [Divides population into subpopulations or strata and uses simple random on each stratum. Results may be weighted and combined.] **Double** [Process includes collecting data from a sample using a previously defined technique. Based on the information found, a subsample is selected for further study.	**Purposive or Judgement** [An experienced individual selects the sample based upon some appropriate characteristic of the sample members.] **Quota** [The researcher classifies the population by pertinent properties, determines desired proportion of sample from each class, and fixes quotas for each interviewer.] **Snowball** [Initial respondents are selected by probability samples; additional respondents are obtained by referral from initial respondents.]

Source: Cooper and Schindler (2008:184, 199); Zikmund (2003:392 – 393)

A very important factor in terms of sample size is the non-response rate. Bryman and Bell (2007:196) as well as Sauners, Lewis and Thornhill (1997:129) indicate that the most common reason for non-response is the refusal to participate, but with no particular reason.

Bryman and Bell (2007:196) suggest that the response rate be calculated as follows:

$$\frac{\text{Number of usable questionnaires}}{\text{Total sample – minus unsuitable or uncontactable members of the sample}} \times 100$$

If this formula is used the response rate for this research study is:

$$\frac{386}{1\,900} \times 100 = 20.3\ \%$$

Saunders, Lewis and Thornhill (1997:131) state that estimating the likely response rate from a sample to which one will be sending a questionnaire or interviewing is more difficult.

In terms of the heterogeneity and homogeneity, Bryman and Bell (2007:196) state that when the sample is mostly homogenous the amount of variation will be less. The more heterogeneous the sample the larger the sample needs to be. The sample of this study is relatively homogeneous (employees from five insurance businesses in the South African short-term insurance industry) and according to Zikmund (2003:424) a small sample is required in this instance.

5.5.2.1 Sample error

Most statistical researchers indicate that a researcher must take note of sample error when selecting the sample. Babbie (2008:217) defines a sample error as: "…the degree of error to be expected in probability sampling". The formula for determining sampling error contains three factors: the parameter, the sample size and the standard error.

Coldwell and Herbst (2004:76) indicate that sampling error gives an idea of the precision of the statistical estimate. A low sampling error means that there is less variability or range in the sampling distribution. The sampling error can be based on the standard deviation. The greater the sample standard deviation, the greater the standard error (and the sampling error).

Zikmund (2003:379) states that non-sampling errors can occur. Non-sampling error results from some imperfect aspect of the research design that causes response error or from a mistake in the execution of the research; error that comes from such sources as sample bias, mistakes in recording responses, and non-responses from persons who were not contacted or who refused to participate. From this research study the non-sampling error that is most applicable due to the non-responses of participants is as indicated in paragraph 5.5.2.

5.5.3 Data collection

Data can be collected in the form of primary or secondary data. Primary data according to Zikmund (2003:175) refers to data gathered and assembled specifically for the research project at hand. Primary data can amongst others be collected by means of questionnaires, surveys, checklists, interviews, documentation review, observation, focus groups and case studies (Coldwell and Herbst, 2004:48-49). Secondary data refers to data that have been previously collected for some purpose other than the one at hand (Zikmund, 2003:136). Zikmund (2003:158 – 167) identifies various forms of secondary data: major indexes (e.g. business periodicals index and the general business file ASAP); reference guides; census data; statistical data; market data; industry data; corporate directories and international sources. Cooper and Schindler (2008:282) add to this list of secondary data sources the following: encyclopaedias, textbooks, handbooks, magazines and newspaper articles.

For the literature section of this study data are collected by means of a literature search using secondary data such as journals, textbook, databases and the Internet. This literature is presented in chapters 2, 3 and 4.

To collect the primary data for this study (assessing the corporate entrepreneurial and innovative levels in the South African short-term insurance industry) a self-administered questionnaire was used. The responses will be anonymous and this data source will be respected in the study. This was the only way in which data could be accessed. There was an agreement between the respective businesses to treat the anonymity as highly confidential.

The complete questionnaire was electronically distributed to the sample by means of electronic mail. A covering letter and the electronic questionnaire (Annexure A) were included in the e-mail.

Saunders, Lewis and Thornhill (1997:244) state that questionnaires can be used for descriptive or explanatory research. Explanatory or analytical research will enable one to examine and explain relationships between variables, in particular cause and effect relationships.

5.5.3.1 Instrument used to collect the primary data

The entrepreneurial health audit instrument developed by Ireland, *et al*. (2006) is used to conduct the assessment for this research study. A detailed discussion of this audit was done in chapter 4. The entrepreneurial health audit instrument makes use of two questionnaires to gather the necessary data.

Firstly the businesses level of entrepreneurial intensity is determined by means of the Entrepreneurial Performance Index (EPI) of Morris (1998). The EPI consists of 21 questions. The first 12 questions determine the degree of entrepreneurship in terms of innovativeness, risk-taking and proactiveness and the other 9 questions determine the frequency of entrepreneurship. Together these 21 questions determine a businesses entrepreneurial intensity level. Although the EPI has been developed in the USA it has been proved as a reliable and valid instrument in a South African context as well.

Secondly the businesses internal work environment is examined to understand the factors accounting for the degree of entrepreneurial intensity the business has at a specific point in time. The Corporate Entrepreneurship Assessment Instrument (CEAI) of Kuratko, *et al.,*

was used to collect this information. Kuratko, *et al.,* developed the CEAI in 1990. The instrument consists of 78 five point likert-style questions ranging from strongly agree to strongly disagree. The desired outcome of the CEAI is to assess a level of corporate entrepreneurship intensity and recognition of corporate entrepreneurship by management within a business. Six distinct internal organisational factors are addressed: management support; work discretion; organisational boundaries; rewards/reinforcement; time availability; and specific climate variables. Although the CEAI has been proved as a reliable and valid instrument in the USA it has also been proved reliable and valid in a South African context.

In addition to these two questionnaires a section is also included to obtain biographical information from the respondents in the sample. Eight biographical questions were asked. These questions included: race, age, ethnicity, highest educational qualification, years in business, insurance business, current job level and years in present job.

5.5.3.2 Measurement of the research instrument

Cooper and Schindler (2008:221) state that measurement in research consists of assigning numbers to empirical events in compliance with a set of rules.

Diamantopoulos and Schlegelmilch (2003:23) indicate that different measurement rules result in different types of measurement scales. A key distinction between different types of measurement scales is according to the level of measurement that these scales provide. Four major types of measurement scales can be distinguished (Diamantopoulos, 2003:24; Zikmund, 2003:299; Cooper and Schindler, 2008:223; Bryman and Bell, 2007:357).

Table 5.3 gives a summary of the four major types of measurement scales.

The complete questionnaire consists of three sections. Section A collects biographical information and consists of eight questions obtaining nominal data. Section B aims to measure the businesses entrepreneurial intensity.

TABLE 5.3 Types of measurement scales

	Nominal	Ordinal	Interval	Ratio
Equivalence	Yes	Yes	Yes	Yes
Order	No	Yes	Yes	Yes
Equal intervals	No	No	Yes	Yes
Absolute zero	No	No	No	Yes
Typical usage	Store types; product categories; geographical locations	Occupation; social class; business preference; attitudes	Index numbers; temperature; calendar time; attitudes	Scales, costs, age, number of customers
Numerical operation	Counting	Rank ordering	Arithmetic operations on intervals between numbers	Arithmetic operations on actual qualities
Descriptive statistic	Frequency and percentage in each category, mode	Median, range, percentile ranking	Mean, standard deviation, variance	Geometric mean, coefficient of variation

Source: Zikmund (2003:297); Cooper and Schindler (2008:223); Diamantopoulos and Schlegelmilch (2003:24)

The degree of entrepreneurship is measured through questions 1 to 12 which consist of a 5 point Likert scale obtaining ordinal data. Questions 13 – 21 measure the frequency of entrepreneurship and consist of 5 point Likert scale questions, 2 questions where the respondents had to state an exact number (ordinal data) and 1 question where the relevant aspects relevant to the respondent had to be indicated (ordinal data).

Section C measures the perception of corporate entrepreneurial culture in the business. This section consists of 78 questions divided into 6 sub-sections. All 78 questions are 5 point-likert scale questions (ordinal data).

5.5.3.3 Characteristics of a sound measurement instrument

Researchers (e.g. Cooper and Schindler, 2008: 231; Zikmund, 2003:300-301; Bryman and Bell, 2007:291; Babbie, 2008:160), indicate that a measuring instrument is sound if it is valid and reliable. Validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration, in other words does it measure what it intends to measure. Reliability refers to whether a particular technique, applied repeatedly to the same object, yields the same result each time.

5.5.3.4 Validity of the measurement instrument

In determining validity the answer can be organised according to measure-relevant types. Cooper and Schindler (2008:231) indicate an accepted classification of three major forms of validity: (1) content validity, (2) criterion-related validity, and (3) construct validity. Table 5.4 gives a summary of the validity estimates.

The Entrepreneurial Performance Index (EPI) and the Corporate Entrepreneurship Assessment Instrument (CEAI) have been compiled and used in previous research. Both questionnaires have been found to be valid (Morris and Sexton, 1996; Kuratko, *et al.,* 1990:54 – 55).

5.5.3.5 Reliability of the measuring instrument

As indicated previously reliability is concerned with whether the measure is reliable to the degree that it supplies consistent results.

Cooper and Schindler (2008:237-239) state that three dimensions underlie the concept of reliability – stability, equivalence and internal consistency.

A measurement has stability if consistent results with repeated measurements of the same person with the instrument can be secured. Cooper and Schindler (2008:238) suggest extending the interval between test and retest as a possible remedy for stability. In this research this was not possible as the instrument was completed once over a period of two months.

TABLE 5.4 Summary of validity estimates

Type	What is measured	Methods
Content	Degree to which the content of the items adequately represents the universe of all relevant items under study	Judgemental or panel evaluation with content validity ratio
Criterion-related • Concurrent • Predictive	Degree to which the predictor is adequate in capturing the relevant aspects of the criterion. Description of the present; criterion data are available at same time as predictor scores. Prediction of the future; criterion data are measured after the passage of time.	Correlation
Construct	Answers the question, "What accounts for the variance in the measure?" Attempts to identify the underlying construct (s) being measured and determine how well the test represents it (them).	Judgemental; Correlation of proposed test with established one; Convergent-discriminant techniques; Factor analysis; Multitrait-multimethod analysis

Source: Cooper and Schindler (2008:232)

Equivalence is concerned with variations at one point in time among observers and samples of items. A good way according to Cooper and Schindler (2008:238) to test for the equivalence of measurements by different observers is to compare each observer's scoring of the same event.

Internal consistency refers to the degree to which the measuring instrument items are homogeneous and reflect the same underlying construct(s).

Table 5.5 gives a summary of the reliability estimates according to Cooper and Schindler (2008:237).

TABLE 5.5 Summary of reliability estimates

Type	Coefficient	What is measured	Methods
Test-retest	Stability	Reliability of a test or instrument inferred from examinee scores. Same test is administered twice to same respondents.	Correlation
Parallel forms	Equivalence	Degree to which alternative forms of the same measure produce the same or similar results.	Correlation
Split-half KR20 Cronbach's alpha	Internal consistency	Degree to which instrument items are homogeneous and reflect the same underlying construct(s).	Specialised correlational formulas

Source: Cooper and Schlinder (2003:237)

The Cronbach alpha (α) is most frequently used by researchers to determine a measuring instrument's reliability. According to Bryman and Bell (2007:164), Cronbach alpha calculates the average of all possible split-half reliability coefficients. A computed alpha coefficient will vary between 1 (denoting perfect internal reliability) and 0 (denoting no internal reliability). The figure 0.80 is typically employed as a rule of thumb to denote an acceptable level of internal reliability, though many writers accept a slightly lower figure. Eiselen, Uys and Potgieter (2005:114) state that the closer the alpha value (α) is to 1 the better the internal consistency (reliability) of the scale.

The Cronbach alpha test done for this research study indicates an alpha value of 0.9525. This means that the reliability of the measuring instruments is sound.

Cooper and Schindler (2008:239) indicate that reliability can be improved by the following:

- minimise external sources of variation;
- standardise conditions under which measurement occurs;
- improve investigator consistency by using well-trained, supervised and motivated persons to conduct the research;

- broaden the sample of measurement questions used by adding similar questions to the data collection instrument or adding more observers or occasions and observational study; and
- improve internal consistency of an instrument by excluding data from analyses drawn from measurement questions eliciting extreme responses.

As the Cronbach alpha for this study is sound it is not necessary to make use of any of these suggestions.

A factor analysis and item analysis was executed to confirm the validity and reliability of the measuring instruments used in this study. In the next two paragraphs factor and item analysis will be discussed in more detail.

5.5.3.6 Factor analysis

Zikmund (2003:586) clarifies a factor analysis as a type of analysis used to discern the underlying dimensions of regularity in phenomena. Its general purpose is to summarise the information contained in a large number of variables into a smaller number of factors. The statistical purpose of a factor analysis is to determine linear combinations of variables that aid in investigating the interrelationships. Factor analysis is executed on variables to strengthen the reliability of the research questionnaires.

Eiselen, *et al.* (2005:104) state that the factor analysis analyses the correlations between pairs of variables and identifies groups of variables in such a way that variables in the same group are highly correlated with one another but essentially uncorrelated with the variable in another group. This technique yields a loading matrix indicating the loading of each variable on each factor. A large loading (positive or negative) implies that the variable contributes a great deal to the factor. The closer the loading is to 0, the less the variable contributes to the factor. In other words by looking at the loading matrix, for each variable, the factor to which it contributes most can be determined. This enables the formation of groups of variables. Once it is established which questions form a group or contribute most to a factor, by considering the wording of the individual questions in that factor, a name is given to that underlying dimension. Eiselen, *et al.* (2005:105) state that

factor analysis helps the researcher to reduce the number of questions to a few interpretable factors or dimensions and enables the researcher to describe the results of a survey in a concise manner by concentrating on the factors rather than the individual questions.

To assist with the identification of the questions contributing most to a factor, the loading matrix can be rotated without changing or altering results. Rotation is used to assist with the interpretation or identification of the variables making up a factor.

Several criteria exist, according to Eiselen, *et al.* (2005:108), that can be used to determine the ideal number of factors. One of these criteria is the eigenvalue. This criterion states that the number of factors to be used is equal to the number of factors with eingenvalues larger than 1.

5.5.3.7 Item analysis

Another method to determine the reliability of a scale is by means of an item analysis (Eiselen, *et al.*, 2005:112). In item analysis one is interested in how well the responses of each item in a factor or scale of items correspond to those of the other items and to the scale as a whole.

An item analysis was conducted for the measuring instrument of this study on Section C, sub-sections 1 to 5.

5.5.4 Data processing and analysis

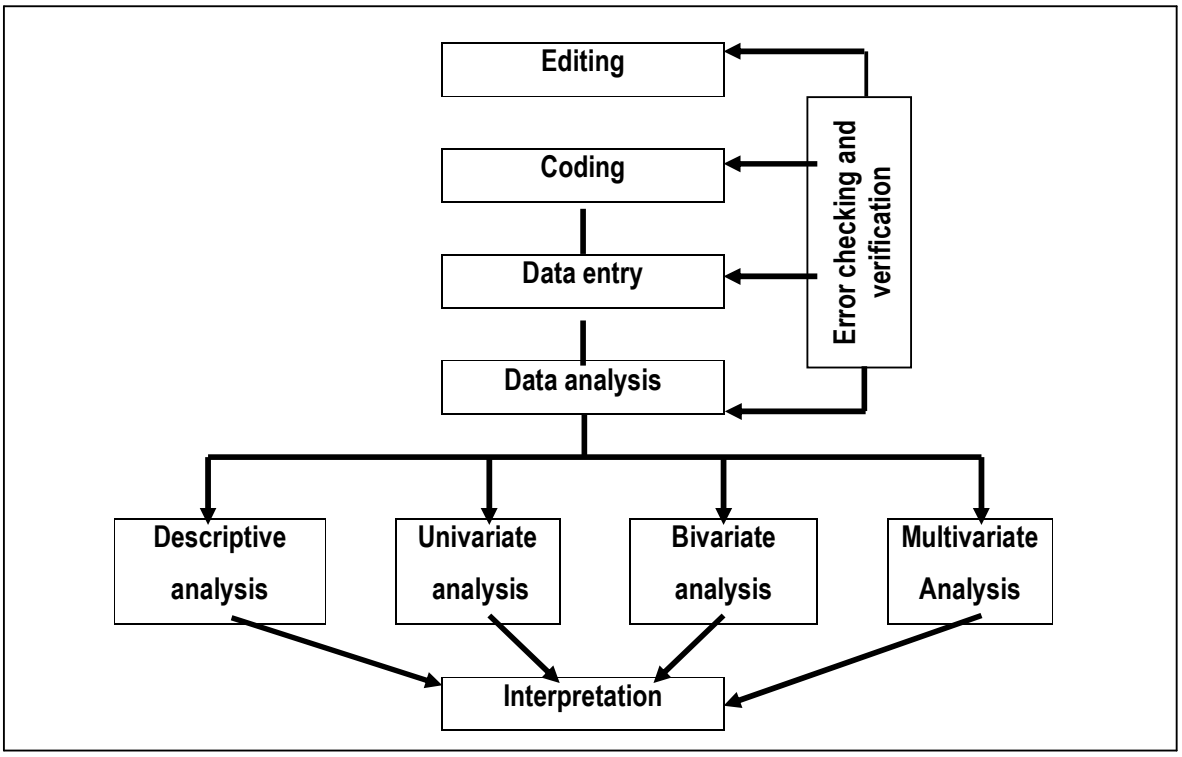
The process of analysis begins after the data have been collected. Figure 5.2 gives an illustration of all the various aspects involved in the data processing and analysis.

Editing detects errors and omissions, corrects them when possible, and certifies that minimum data quality standards have been achieved (Cooper and Schindler, 2008:455). Coding involves assigning numbers or other symbols to answers so the responses can be grouped into a limited number of classes or categories (Cooper and Schindler, 2008:456

and Zikmund, 2003:457). Data entry converts information gathered by secondary or primary methods to a medium for viewing and manipulation.

After the editing for this study was done, the questionnaires were processed by the Department of Statistics at the University of Pretoria. After the verification and correcting of errors the data were ready for further analysis. For data analysis purposes the SPSS (Statistical Package for the Social Sciences) was used to compile the descriptive and inferential statistics.

FIGURE 5.2 Stages in the data analysis



Source: Zikmund (2003:453)

5.5.4.1 Descriptive statistics

Zikmund (2003:402) describes descriptive statistics as statistics used to describe or summarise information about a population or sample. Zikmund (2003:473) also states that descriptive analysis is the transformation of raw data into a form that will make them easy to understand and interpret; rearranging, ordering and manipulating data to provide

descriptive information. Calculating averages, frequency distributions and percentage distributions are the most common ways of summarising data. Descriptive statistics are presented through the use of tables and graphics in chapter 6 of this study.

5.5.4.2 Inferential statistics

Inferential statistics, according to Zikmund (2003:402), are the statistics used to draw inferences or make judgements about a population on the basis of a sample. Diamantopoulos and Schlegelmilch (2000:65) state that when the focus of analysis is on estimation or hypothesis-testing, the sample is used to draw inferences about the population. This process was formally known as statistical inference and the various techniques that are employed are commonly known as inferential statistics. Cooper and Schindler (2008:534) summarise the various techniques to choose from for the inferential statistics.

Based on the distribution of the descriptive statistics obtained from the study, the following techniques were used to perform the inferential analysis: frequency distribution, cross-frequency tabulation, item analysis, factor analysis, chi-square test, One-Way Analysis of Variance (ANOVA), Post-Hoc test; *t*-test and Pearson's Correlation Coefficient.

- **Chi-square test**

Diamantopoulos and Schlegelmilch (2000:154) refer to a chi-square (X^2) test as a test to use when one wants to compare a set of observed frequencies (frequencies calculated from the empirical data reflecting the actual distribution of the variable concerned in the sample) with a set of theoretical frequencies. Cooper and Schindler (2008:536) indicate that when one uses the chi-square technique, one tests for significant differences between the observed distribution of data among categories and the expected distribution based on the null hypothesis. In the one-sample case, a null hypothesis is established based on the expected frequency of objects in each category. Then the deviations of the actual frequencies in each category are compared with the hypothesised frequencies. The greater the difference between them, the less is the probability that these differences can be attributed to chance.

TABLE 5.6 Recommended statistical techniques by measurement level and testing situation

Measurement level	One-sample case	Two sample case		k-Sample case	
		Related samples	Independent samples	Related samples	Independent samples
Nominal	• Binomial • Chi-square one-sample	• McNemar	• Fisher exact test • Chi-square two-samples test	• Cochran Q	• Chi-square for k-samples
Ordinal	• Kolmogorov-Smirnov one-sample test • Runs test	• Sign test • Wilcoxon matched paired test	• Median test • Mann-Whitney U • Kolmogorov-Smirnov • Wald-Wofowitz	• Friedman two-way ANOVA	• Median extension • Kruskal-Wallis one-way ANOVA
Interval and ratio	• t-test • Z-test	• t-test for paired samples	• t-test • Z-test	• Repeated-measures ANOVA	• One-way ANOVA • n-way ANOVA

Source: Cooper and Schindler (2008:534)

Bryman and Bell (2007:370) state that a chi-square value means nothing on its own. It can only be meaningfully interpreted in relation to its associated level of statistical significance.

Bryman and Bell (2007:368) indicate that the test for statistical significance allows the analyst to estimate how confident he or she can be that the results derived from a study based on a randomly selected sample are generalisable to the population from which the sample was drawn. When examining statistical significance in relation to the relationship between two variables, it also tells about the risk of concluding that there is in fact a relationship in the population when there is no such relationship in the population. A

statistical significance is solely concerned with the confidence researchers can have in their findings.

The level of statistical significance is the level of risk that one is prepared to take by inferring that there is a relationship between two variables in the population from which the sample was taken when in fact no such relationship exists. The maximum level of risk that is conventionally taken in business and managerial research is to say that there are up to 5 chances in 100 that might be falsely concluding that there is a relationship when there is not one in the population which the sample was taken. The significance level is denoted by $p < 0.05$ (*p* means probability).
The chi-square was used in this study for one-sample cases to test for differences.

- **One-Way Analysis of Variance (ANOVA)**

The statistical method for testing the null hypothesis that the means of several populations are equal, is analysis of variance (ANOVA). According to Cooper and Schindler (2008:546) ANOVA uses a single-factor, fixed-effect model to compare the effects of one factor on a continuous dependent variable. Zikmund (2003:529) describes the ANOVA as the analysis of the effects of one treatment variable on an interval-scaled or ratio-scaled dependent variable – the technique to determine whether a statistically significant difference in means occurs between two or more groups. The variances are compared to draw inferences about the means.

Cooper and Schindler (2008:547) state that the test statistic for ANOVA is the *F* ratio. The mean square is formulated by means of the *F* ratio. If the null hypothesis is true, there should be no difference between the populations, and the ratio should be close to 1. If the population means are not equal, the *F* ratio should be greater than 1. The *F* distribution determines the size of ratio necessary to reject the null hypothesis for a particular sample size and level of significance.

Together with the *F*-statistic a p-value is calculated. If the p-value < 0.05, the null hypothesis is rejected. If the p-value is ≥ 0.05 the null hypothesis is not rejected because the means of all the groups are the same (Eiselen, *et al.*, 2005:120).

Zikmund (2003:535) states that in ANOVA, if the observed statistic is greater than the test value for some level of significance, the hypothesis that there is no significant difference in the means of the sample groups may be rejected.

- **Post-Hoc test**

Eiselen, *et al.* (2005:121) state that if the null hypothesis of equal population means is rejected, it is only known that at least two groups have a different population mean, but not which groups are different. In order to determine which groups are different, additional hypothesis tests need to be conducted. These tests are referred to as multiple comparison or Post-Hoc tests. Post-Hoc tests test if each pair of means is the same. The Post-Hoc tests differ from the individual *t*-tests because they adjust the p-value to take account of the fact that multiple *t*-tests are performed.

- ***t*-test**

According to Zikmund (2003:535), the *t*-test is appropriate when the population standard deviation is unknown. The *t*-test is chosen when the sample is small. Zikmund (2003:524) defines a *t*-test as a technique used to test the hypothesis that the mean scores on some interval-scale variable are significantly different for two independent samples or groups. To use the *t*-test for difference of means, it is assumed that the two samples are drawn from normal distributions.

5.5.4.3 Test for association and correlation

Eiselen, *et al.* (2005:85) state that two variables are associated or correlated if they occur together in a patterned way. The stronger the association between two variables, the more likely it can be guessed correctly.

Cooper and Schindler (2008:571) summarise the commonly used measures of association in table 5.7.

TABLE 5.7 Commonly used measures of association

Measurement	Coefficient	Comment on uses
Interval and ratio	Pearson (Product moment correlation coefficient	For continuous linearly related variables
	Correlation ratio (eta)	For non-linear data or relating a main effect to a continuous dependent variable
	Biserial	One continuous and one dichotomous variable with an underlying normal distribution
	Partial correlation	Three variables; relating two with the third's effect taken out
	Multiple correlation	Three variables; relating one variable with two others
	Bivariate linear regression	Predicting one variable from another's scores
Ordinal	Gamma	Based on concordant-discordant pairs
	Kendall's tau b	P – Q based: adjustment for tied ranks
	Kendall's tau c	P – Q based; adjustment for table dimensions
	Somer's d	P – Q based: asymmetrical extension of gamma
	Spearman's rho	Product moment correlation for ranked data
Nominal	Phi	Chi-square based for 2 x 2 tables
	Cramer's V	Chi-square based; adjustment when one table dimension > 2
	Contingency coefficient C	Chi-square based: flexible data and distribution assumptions
	Lambda	PRE-based interpretation
	Goodman & Kruskal's tau	PRE-based with table marginal's emphasis
	Uncertainty coefficient	Useful for multidimensional tables
	Kappa	Agreement measure

Source: Cooper and Schindler (2008:571)

Eiselen, *et al.* (2005:96) state that the Pearson's r is used to determine the extent of linear association between two continuous variables. Pearson's r can be used provided certain assumptions are met. The assumptions are:

- the association between the two variables is linear;
- both variables are normally distributed; and
- the variances of the two variables are equal.

Theoretically, Pearson's r, can take on values between -1 and +1, where -1 refers negative, decreasing linear relationships, 0 refers to no linear relationship, and a value of 1 refers to a perfect positive or increasing linear relationship.

Eiselen, *et al.* (2005:99) further note that a correlation can also be interpreted as an effect size. A correlation of smaller than 0.1 (or > -0.1) is considered insubstantial or negligible, while a correlation between 0.1 and 0.3 (or between -0.3 and -0.1) is considered to be small (e.g. a small effect) and a correlation between 0.3 and 0.5 (or -0.5 and -0.3) is moderate (e.g. a moderate effect). If the correlation coefficient is 0.5 or larger (or ≤ -0.5), the correlation is considered to be large (e.g. a large effect). The conclusion can be made that the closer the correlation is to 1 (or -1) the stronger the relationship between the two variables.

5.6 CONCLUSION

This chapter provided a description of the research methodology applied in this study. The description was done according to the research process (as illustrated in figure 5.1). The research problem was shortly summarised, thereafter the objectives were stated as well as the hypotheses. Thirty seven hypotheses were formulated. The main objective is to assess corporate entrepreneurial and innovative levels in South African short-term insurance businesses.

The research design used to test these hypotheses was a formal case study design. The corporate entrepreneurial health audit instrument of Ireland, *et al*. (2006) was used to assess the corporate entrepreneurial and innovative levels in South African short-term

insurance businesses. From this assessment the ultimate objective is to develop a corporate entrepreneurial programme to implement and foster corporate entrepreneurship in South African short term insurance businesses.

The sampling size was 1900. The study made use of a non-probability purposive sample. The response rate was 20,3 %. Data were collected by means of a literature review and a self-administering questionnaire. The statistical techniques that precede the actual results presented in chapter 6 were explained and verified. Apart from the descriptive statistics (frequency distribution, mean, standard deviation and cross frequency tabulation), inferential statistics were also used. The statistical tests used to test the hypotheses are factor analysis, item analysis, chi-square test, One-Way-Analysis of Variance (ANOVA), Post-Hoc tests, *t*-test and Pearson's Correlation Coefficient.

The next chapter explains and interprets the most significant results as found by executing the above techniques.

CHAPTER 6:
FINDINGS OF THE RESEARCH STUDY

"There is relatively little field research on the successes or failures of large organisations that have tried to instil corporate entrepreneurship systematically within their walls. Therefore, it is recommended that future research needs to be conducted to determine the successes and failures of corporate intrapreneurship training programmes and to establish what the contribution is towards the creation of an entrepreneurial orientation".

Thornberry (2003:333)

6.1 INTRODUCTION

The literature study revealed the necessity for businesses to stimulate, foster and develop corporate entrepreneurship in a business. Various methods and techniques were identified to stimulate, foster and develop corporate entrepreneurship in an existing business. The literature also indicated that before a business can implement corporate entrepreneurship the business must firstly determine the current levels of entrepreneurship. The corporate entrepreneurial health audit is an instrument developed by Kuratko, Montagno and Morris (2006) that assists in this regard. The three steps of the health audit consist of the following: firstly the businesses entrepreneurial intensity needs to be measured; secondly the climate for corporate entrepreneurship in the business is diagnosed; and thirdly the degree to which a corporate entrepreneurship strategy and the entrepreneurial behaviour through which it is implemented are understood and accepted by affected parties. For this research the entrepreneurial intensity was measured with the Entrepreneurial Performance Index (EPI) and the climate for corporate entrepreneurship by the Corporate Entrepreneurship Assessment Instrument (CEAI). The development programme will be compiled from the gaps identified by these two measuring instruments.

This health audit forms the basis of this research where it has been applied and tested in short-term insurance businesses in South Africa. This chapter focuses on summarising

and interpreting the research findings and descriptive statistics, based on the responses from the respondents who completed the quantitative research questionnaires.

The first section of this chapter reports on the demographic profile of the respondents by means of descriptive statistics. The second section focuses on reporting the validity and reliability of the instruments used in this research study. Thirdly, this chapter will focus on the performance of respondents in terms of the entrepreneurial intensity of the business and the significant differences in several variables of the degree and frequency of entrepreneurship. Fourthly, the results of the respondents' perception of their workplace and their businesses will be presented. The significant differences of the respondent's are reported by means of the Chi-square, One-Way Analysis of Variance (ANOVA) tests, Post Hoc test, Pearson's Correlation Coefficient and lastly the *t*-test.

6.2 DESCRIPTIVE STATISTICS

Eiselen, *et al.* (2005:50) state that a descriptive statistic summarises some aspect of values making up the variable. Calculating averages, frequency distributions and percentage distributions are the most common ways of summarising data according to Zikmund (2003:473). The descriptive statistics of this study will be presented through frequencies and percentages by means of tables and graphics. The sample consisted of 1900 employees in the South African short-term insurance industry and 386 questionnaires were returned. This gives a response rate of 20,3 %. In the discussion of the various descriptive statistics some frequencies were omitted because of non-responses.

Descriptive statistics will be provided on the gender of respondents, age, ethnicity, highest education qualification, how many years the respondents have been with the business, the distribution of respondents in the various business units of the business, the current management levels and how many years the respondents have been in their current job.

TABLE 6.1 Gender of respondents

Gender	Frequency (n)	Percentage
Male	138	36.41
Female	241	63.59
Total	**379**	**100**

FIGURE 6.1 Gender of respondents

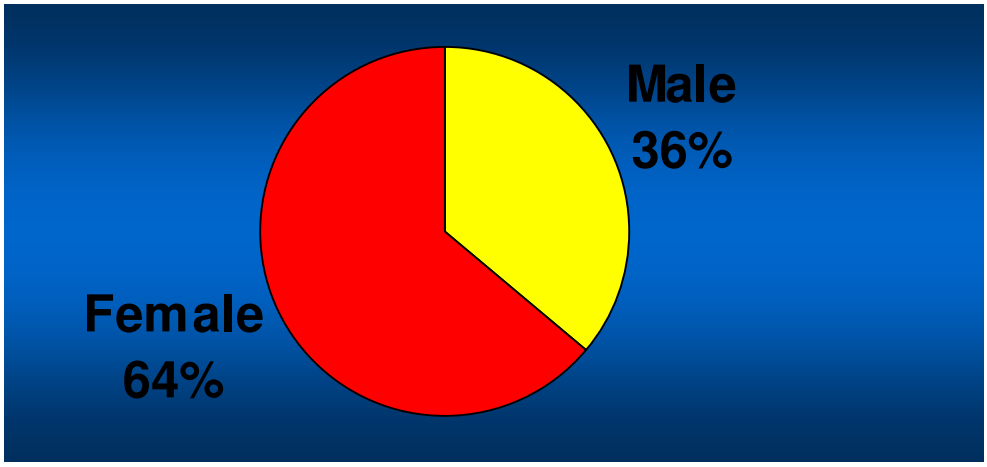
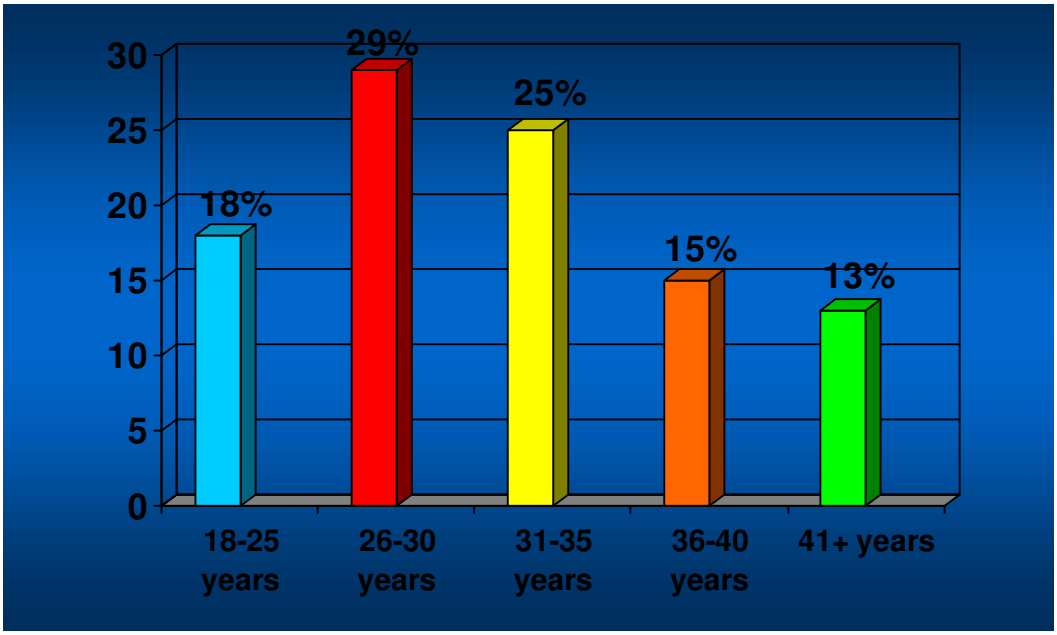


Table 6.1 and figure 6.1 indicate that 36% of the respondents were males and 64% females.

TABLE 6.2 Average ages of respondents

Average of age	Frequency (n)	Percentage
18 – 25 years	70	18.13
26 – 30 years	112	29.02
31 – 35 years	96	24.87
36 – 40 years	57	14.77
41 years and older	51	13.21
Total	**386**	**100**

FIGURE 6.2 Average ages of respondents

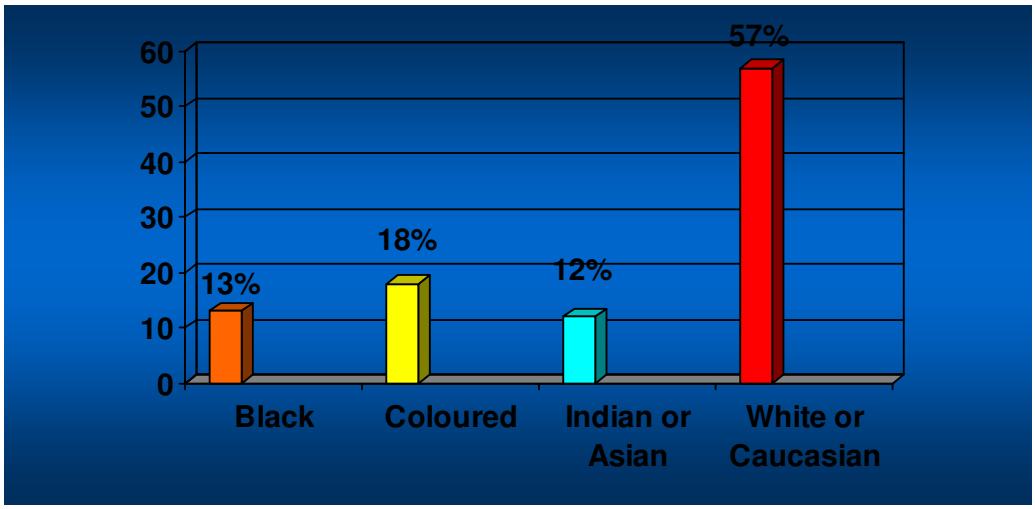


There were not sufficient respondents in each age category (as indicated in the questionnaire) therefore the categories had to be regrouped as indicated in table 6.2 and figure 6.2. From this table and figure it can be noted that most of the respondents fall in the age category of 26 to 30 years. The second largest group falls between the ages of 31 and 35 years (25%). Collectively the age distribution of the respondents indicates that 28% of the respondents are older than 36 years and 72% younger. This means that the respondents consist mostly of very young people.

TABLE 6.3 Ethnic groups of respondents

Ethnic groups	Frequency (n)	Percentage
Black	49	12.83
Coloured	67	17.54
Indian or Asian	45	11.78
White or Caucasian	221	57.85
Total	**382**	**100**

FIGURE 6.3 Ethnic groups of respondents

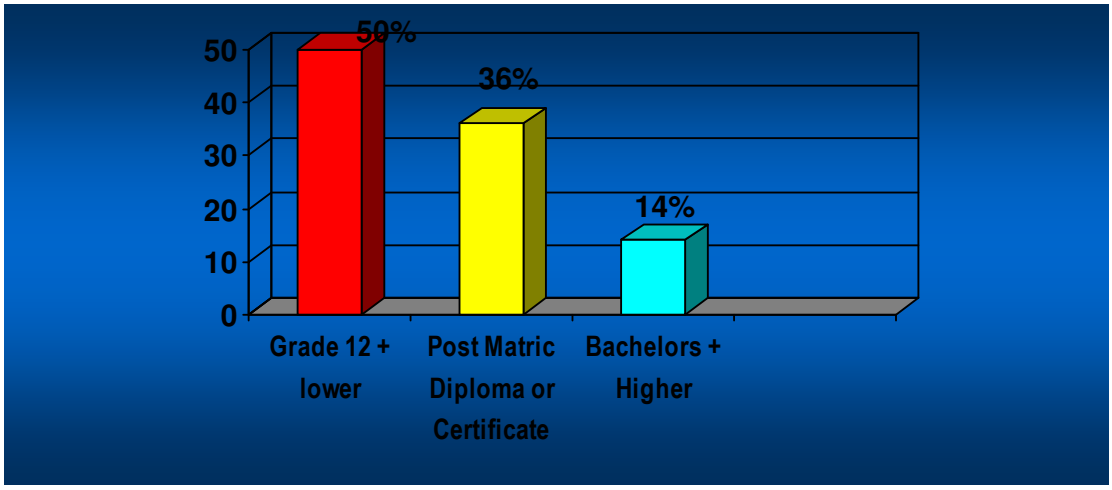


From table 6.3 and figure 6.3 the respondents from the white or Caucasian ethnic group were 57%. The second biggest group was the coloureds (18%) followed by the blacks (13%) and lastly the Indian or Asians (12%).

TABLE 6.4 Educational qualifications of respondents

Educational qualification	Frequency (n)	Percentage
Grade 12 or lower	195	50.52
Post Matric Diploma or Certificate	137	35.49
Bachelor Degree(s) and/or Post Graduate Degree(s)	54	13.99
Total	**386**	**100**

FIGURE 6.4 Educational qualifications of respondents

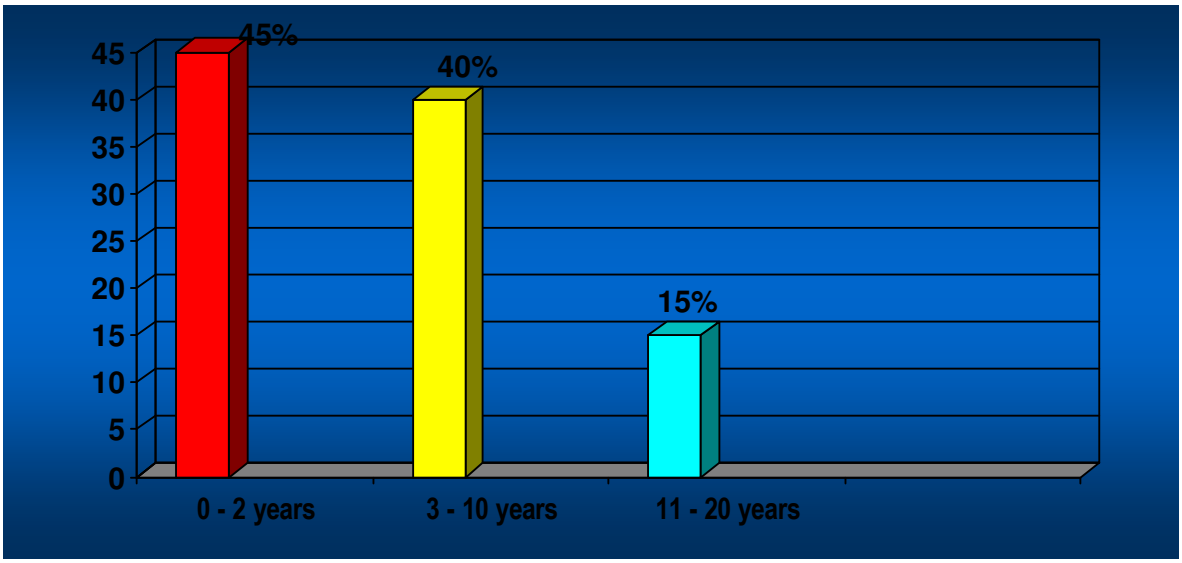


The questionnaire originally categorised the various qualifications into five different groups, but there were not sufficient numbers in this format. The categories were adjusted to only three. From the statistics on the highest educational qualification it can be seen that 50% of respondents have a qualification of Grade 12 or lower. If the other two categories are grouped together it can be deduced that 50% of the respondents have a post matric qualification.

TABLE 6.5 How many years have the respondents been with the insurance business

Quantity of years with business	Frequency (n)	Percentage
0 – 2 years	176	45.60
3 -10 years	153	39.63
11 – years and more	57	14.77
Total	**386**	**100**

FIGURE 6.5 How many years have the respondents been with the insurance business



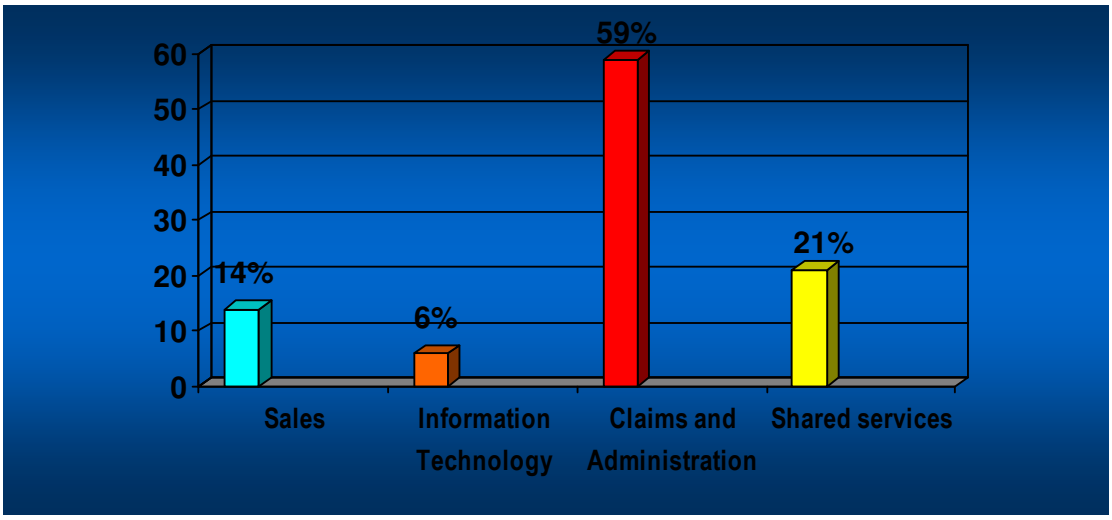
Originally the categories for the number of years the respondents have been with the insurance were grouped in nine categories. Again, because of insufficient responses in each category, the categories were reduced to three. From table 6.5 and figure 6.5 it can be seen that most respondents (55%) have been with the business between 3 to 10 years.

Because a huge number of respondents fall in the category “0 to 2 years” it would be a good indication to compare this with the businesses staff turnover. This could be included as a possibility for future research and comparisons.

TABLE 6.6 Distribution of respondents in the various business units of the insurance businesses

Business unit level	Frequency (n)	Percentage
Sales	52	13.48
Information Technology	25	6.48
Claims and Administration	228	59.06
Shared Services	81	20.98
Total	**386**	**100**

FIGURE 6.6 Distribution of respondents in the various business units of the insurance businesses



On the original questionnaire a distinction was made between all the various business units in the insurance businesses. The responses were grouped into four broad categories: sales, information technology, claims and administration and shared services. The **sales category** includes direct sales, brokers and commercial sales. **Claims and administration** includes all the employees from the claims and administration departments as well as top management, legal employees, client services and the ombudsman. The **shared services** category includes financial services, operations,

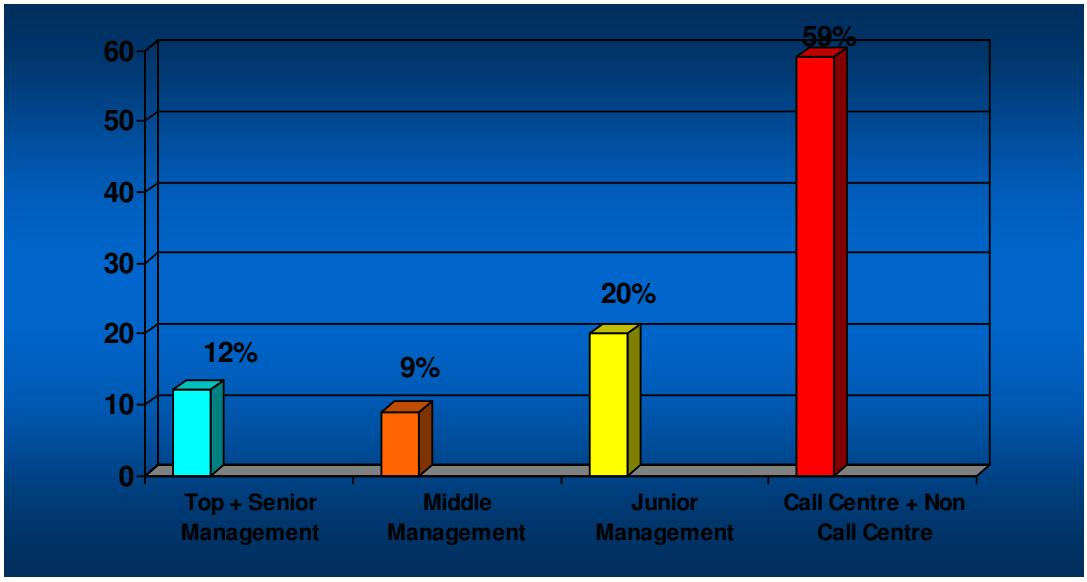
human resources, and risk and assurance. The **information technology** group includes all the employees working with computer related aspects, information systems and information technology.

Most respondents are allocated in the claims and administration business unit. This makes sense because the bulk of an insurance businesses staff will form part of claims and administration.

TABLE 6.7 Current management levels of the respondents

Current job level	Frequency (n)	Percentage
Top and Senior Management	47	12.18
Middle Management	36	9.33
Junior Management	77	19.94
Call Centre and Non-Call Centre staff	226	58.55
Total	**386**	**100**

FIGURE 6.7 Current management levels of the respondents



From the original questionnaire the Junior Management and Supervisory categories were grouped together. The **top management** category includes the director and general managers. The **middle management** category includes the Business managers; Human Resources managers; Project managers; Development managers; Senior Brand

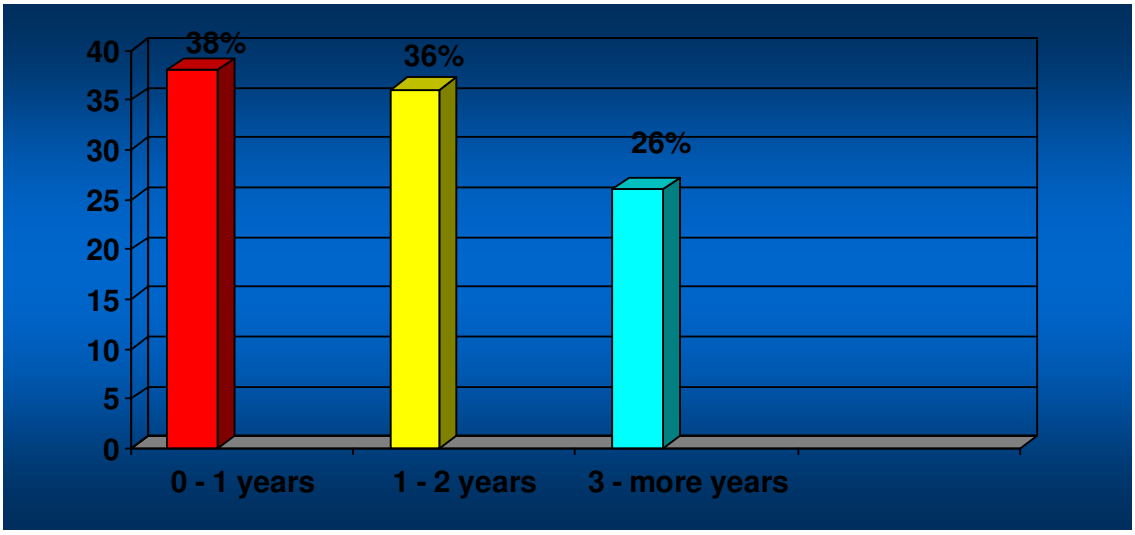
managers; and Assistant General managers. The **junior manager** category includes Team managers; Sales managers; Marketing managers; Team Leaders; Brand managers; Office managers; and Supervisors. Lastly the **Call Centre and non-Call Centre** employees includes the following: Sales Consultants; Contact Centre Consultants; Message Centre Consultants; Sales Administrators; Loss Adjustors; Claims Consultants; Personal Assistants, Programmers and Media Planners.

From table 6.7 and figure 6.7 the majority representation (59%) is from employees in the Call Centre and general workers from the Non-Call Centre category. The responses from the top management and junior management level correspond with the compilation of businesses in general. The middle management level, in terms of the other levels, is under-represented with only 36%.

TABLE 6.8 How many years have the respondents been in their current job

Years in present job	Frequency (n)	Percentage
0 – 12 months	149	38.60
1 – 2 years	138	35.75
3 – more years	99	25.65
Total	**386**	**100**

FIGURE 6.8 How many years have the respondents been in their current job



In the original questionnaire there were nine categories but because there were not sufficient responses in all the categories it had to be re-grouped into three categories. Table 6.8 and figure 6.8 indicate that 38% of the respondents have been in their current jobs for less than 12 months, 36 % of the respondents have been in their current position for one to two years and the remainder (26%) for three years or more.

When the time in current job is compared with time that the respondents have been in the business, there is a direct correlation. 45% of respondents indicated that they have been with the business for less than two years and 38% respondents indicated that they have been in their current job for less than a year. 55% of respondents indicated that they have been working in the business for 3 years or more and 26% respondents indicated that they have been in their current position for more than 3 years. This means that the employees in the insurance businesses, although they have been with their business for a number of years, are not stagnating in the same positions and are either promoted or are moving from one business unit to another.

The **outstanding characteristics** resembling the profile of the respondents are as follows:

Female, between the age of 26 and 30 years; from the white or caucasion ethnic group; with an educational qualification of grade 12 or lower, that has been with the insurance business for less than 2 years; working in the claims or administrative section of the business and forms part of the call centre or non-call centre level and is less than 6 to 12 months in her present position.

6.3 Validity and reliability of the measuring instrument

The Entrepreneurial Performance Index (EPI) and the Corporate Entrepreneurship Assessment Instrument (CEAI) have been used widely in various research projects and in various countries. In all international research studies where these instruments have been used it was proved that both instruments are valid and reliable. Studies conducted in South Africa also confirm the validity and reliability (Bauwmeester, 2005; Gantsho, 2006;

Scheepers, 2007; Nyanjom, 2007). Based on these premises it can be stated that the two instruments used in this study are valid and reliable.

To add further support to the validity and reliability of the CEAI, a factor analysis was conducted.

TABLE 6.9 Rotated factor analysis of the CEAI

Variable descriptor		Factor loadings				
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
C9	People are encouraged to take calculated risks	**0.890**				
C10	Individual risk takers are recognised	**0.808**				
C11	"risk taker" is regarded as a positive attitude	**0.806**				
C12	Business supports small and experimental projects	**0.614**				
C13	Desire of people to generate new ideas across the departmental and functional boundaries	**0.566**				
C6	Senior managers encourage innovators to bend rules	**0.556**				
C8	Several options exist in the business to get financial support for innovative projects	**0.551**				
C48	Business rewards employees who take risks	**0.535**				
C31	Several options exist in business to get financial support for innovative projects	**0.509**				
C32	Successful innovative projects get additional rewards	**0.442**				
C30	New innovative ideas are followed by promotion	**0.320**				
C59	Organisational structure is flexible	**0.325**				
C76	Businesses environment encourages openness about ways to improve operations	**0.392**				
C74	Innovation and risk taking are core values in the business	**0.468**				
C49	Jobs are broadly defined	**0.395**				
C14	People are encouraged to talk about ideas for new projects	**0.472**				
C75	New ideas receive quick feedback	**0.304**				
C5	If working on projects, making decisions without going through red tape is allowed	**0.461**				
C4	Innovative ideas receive management encouragement	**0.406**				
C7	Top managers are experienced with the innovation process	**0.485**				
C46	Job description specifies standards of performance		**0.582**			
C34	Level of work performance is clear		**0.577**			
C33	Work performance is discussed frequently		**0.540**			
C52	Annual performance appraisals include employee innovativeness		**0.532**			
C72	Business has an urgency for change and innovation		**0.300**			
C69	Business has a culture of reward for the tried and true		**0.370**			

C57	Managers are encouraged to "micromanage" employees and projects		**0.311**			
C28	Get special recognition if work performance is good		**0.374**			
C67	Organisational structure is clearly defined and delineated		**0.484**			
C26	Rewards depend on work on the job		**0.375**			
C51	Creative potential of employees is developed		**0.447**			
C50	Employees can pursue multiple career paths		**0.318**			
C27	Job responsibilities are increased if individuals are performing well		**0.352**			
C54	Business balances incentives for individual initiative with incentives for team collaboration		**0.314**			
C70	Business celebrates innovative achievements		**0.383**			
C22	Individual gets to decide what to do on job			**0.808**		
C20	Freedom to decide what to do on job			**0.778**		
C21	Own responsibility to decide how job gets done			**0.759**		
C23	Have autonomy to decide what to do on job			**0.718**		
C15	Freedom to be own boss			**0.574**		
C18	Business provides freedom to use own judgement			**0.570**		
C19	Individuals get the chance to do something that makes use of their abilities			**0.424**		
C17	Business gives opportunity to be creative			**0.500**		
C42	Follows standard operating procedures to do major tasks				**0.323**	
C61	Red tape and slow approval are problems in the business				**0425**	
C53	More concern with process than with performance				**0.379**	
C16	Mistakes made on job are punished and get harsh criticism				**0.403**	
C56	Bureaucratic system takes entrepreneurial ability away				**0.337**	
C58	Too many levels in the business				**0.428**	
C60	Rigid chain of command limits ability to experiment with new ideas				**0.487**	
C73	Business has motto: " if it is not broken, don't fix it"				**0.423**	
C3	Top management is aware and receptive of ideas and suggestions				**0.439**	
C2	New ideas for improvement are encouraged				**0.415**	
C37	Have right time and work load to do everything well					**0.759**
C36	Enough time to get everything done					**0.738**
C39	Work with time constraint on job					**0.465**
C40	There is time for long-term problem solving					**0.446**
C38	Job is structured with little time to think of wider organisational problems					**0.417**
C35	Work load keeps from spending time on developing new ideas					**0.385**
C41	Employees with good ideas get free time for development of ideas					**0.334**

In table 6.10 the variance of each factor is indicated.

Table 6.10 Variance explained by the factor (VP)

Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Total
7.237	4.907	3.876	2.919	2.522	**21.461**
All Eigen values >1					

The Eigen values, which determine the number of factors when factor loading is done, are indicated in table 6.10. The Eigen values have to be greater than or equal to one in order to be included as a factor when loading is done on variables.

Although the cumulative variances explained (VP) in table 6.10 are not on such a high level, it is still believed that there is a stable factor structure present. This is supported by the Eigen values that are all above 1 and it is the opinion of the researcher that this is on an acceptable level.

From the factor analysis the factors are labelled as follow:

Factor 1 = Managerial support for corporate entrepreneurship and innovation
Factor 2 = Rewards
Factor 3 = Work discretion
Factor 4 = Organisational boundaries
Factor 5 = Time availability

To confirm the reliability and accuracy of the CEAI, the Cronbach alpha values were calculated for the five factors. Table 6.11 summarises these values. As can be seen from this table the Cronbach alpha values are relatively high. Nunally (1978) recommended that 0.500 is an acceptable threshold for an acceptable alpha score. It can be deduced that the accuracy is on an acceptable level and supports the fact that the CEAI is reliable.

TABLE 6.11 Cronbach alpha values of the CEAI factors

Factor	Description	Cronbach alpha value
Factor 1	Management support	0.9222
Factor 2	Rewards/reinforcements	0.7936
Factor 3	Work discretion	0.8700
Factor 4	Organisational boundaries	0.6591
Factor 5	Time availability	0.7119

The overall alpha value of these factors is 0.9252.

6.4 Results of the short term insurance businesses entrepreneurial intensity

As indicated in chapters 3 and 4, a business's entrepreneurial performance at a given point in time is reflected in its entrepreneurial intensity score. Entrepreneurial intensity is concerned with the degree and frequency of entrepreneurship occurring within a business (Ireland, *et al.*, 2006b:22). The degree of entrepreneurship refers to the proactiveness, innovativeness and risk-taking in the business. Frequency involves the measuring of the number of new innovative products, processes and services over some defined time period.

The Entrepreneurial Performance Index (EPI) can be used to measure the businesses entrepreneurial intensity. The instrument can be used to evaluate the overall businesses entrepreneurial intensity but also the entrepreneurial intensity of different parts of a business. The instrument consists of 21 items. The first 12 items measure a business's degree of entrepreneurship and the remaining items the frequency of entrepreneurship.

Firstly, the influence of various dependent variables (relating to the degree of entrepreneurship) on certain independent variables (years in business, business unit level and management level) will be reflected in table 6.12.

Secondly, table 6.13 will address the results of the businesses degree of entrepreneurship. Thirdly, the results of the frequency of entrepreneurship will be

presented. Tables 6.14 to 6.16 will present the results of various independent variables on the dependent variables: number of product improvements/revisions introduced by individuals in the business; new product improvements/revisions compared to competitors; and the number of new product introductions that did not previously exist in the market ("new market"). Fourthly, tables 6.17 to 6.21 will address the results of the businesses frequency of entrepreneurship in terms of various dependent and independent variables.

From table 6.12 the results of the influence of the dependent variables on certain independent variables, where there is a statistical significant difference will be discussed one at a time.

6.4.1 The relationship of the rate of new product/service introductions compared to competitors (DV) and the years in working in the business (IV)

Table 6.12 indicates that there is a statistical significant difference between the years that the employees have been working in the insurance business and the high rate of new product/service introductions compared to competitors. The years working in the insurance business are divided between less than two years, three to ten years and eleven and more years. The statistics indicate that the perceptions of employees that have been working for less than two years in their businesses, differ significantly from those of the employees that have been working longer in their businesses.

In terms of the stated hypothesis the following can be deduced:

Hypothesis Ho1 is rejected: There is no statistical difference in terms of the years that the employees have been working in South African short-term insurance businesses and the perceptions on the rate of new products/service introductions compared to competitors.

TABLE 6.12 The influence of various dependent variables (relating to the degree of entrepreneurship) on certain independent variables

Dependent variables	Independent variables													
	Years: business – mean scores				Business unit level –mean scores					Management level – mean scores				
	≤ 2 years A	3-10 Years b	≥ 11 years c	P value (ANOVA)	Sales a	IT b	Claims & Admin c	Shared Services d	P value (ANOVA)	Top a	Middle b	Lower c	Call & non Call Centre d	P value (ANOVA)
High rate **of new product/service introductions compared to competitors**	3.8 a<b a<c	4.0	4.2	**0.0009*** **	3.9	3.8	3.9	3.9	0.8989	4.0	4.1	4.1	3.8	0.1966
Emphasis on **continuous improvement** in methods of production and/or service delivery	3.9	3.9	4.3	0.3153	3.9 a<c	3.7	4.1 c<d	3.7	**0.0063*** **	4.0	4.1	4.1	3.9	0.2834
Risk-taking by executives in exploring new opportunities	3.2	3.3	3.5	0.2763	3.4	3.2	3.3	3.3	0.6972	3.1 a<b a<c a<d	3.6	3.5	3.3	**0.0161*** **
A **"live and let live" philosophy** in dealing with competitors	3.2	3.3	3.3	0.0742	3.1	3.3	3.3	3.3	0.9464	2.8 a<c a<d	3.0 b<d	3.3	3.4	**0.0069*** **
Seeking of unusual, novel solutions by senior management to problems	3.4	3.3	3.8	0.1410	3.3	3.3	3.5	3.4	0.5225	3.5	3.8	3.5	3.3	0.3539
Top management philosophy that emphasises proven products and services	3.2	3.4	3.4	0.2221	3.3	3.2	3.3	3.4	0.7815	3.4	3.2	3.3	3.3	0.4777
Top-level decision-making is characterised by:														
Cautious, pragmatic, step-at-a-time **adjustments to problems**	3.3	3.2	3.1	0.3350	3.4 -	2.8 -	3.2 -	3.3 -	**0.0245*** **	3.0	2.9 b<c b<d	3.3	3.3	**0.0310*** **
Active search for big opportunities	3.7 a<c	3.6 b<c	4.1	**0.0045*** **	3.9	3.7	3.7	3.6	0.4270	3.8	3.9	3.8	3.6	0.1531
Rapid growth as the dominant goal	3.5	3.4	3.5	0.6733	3.6	3.6	3.4	3.6	0.7762	3.7	3.4	3.4	3.5	0.4850
Large, bold decisions despite uncertainties of the outcomes	2.8 a<b	3.0	3.0	**0.0417*** **	3.0	2.9	2.9	3.1	0.8100	2.9	3.1 b<c	2.7 c<d	3.0	**0.0452*** **
Compromises among conflicting demands of stakeholders	3.0 a<b a<c	3.2	3.3	**0.0070*** **	3.0	3.2	3.1	3.2	0.8181	3.2	3.0 b<d	3.0 c<d	3.2	**0.0101*** **
Steady growth and stability as primary concerns	3.6	3.6	3.9	0.5773	3.9	3.3	3.7	3.7	0.3157	3.7	3.8	3.8	3.6	0.2386
p*** statistical significance at the 5% level										Symbols with < indicate that there is a significant difference at the 5% level				

6.4.2 The relationship of the perceptions that top level decision-making is characterised by an active search for big opportunities (DV) and the years in working in the business (IV)

As can be seen on table 6.12 there is a significant statistical difference between the years that the employees have been working in their businesses and the perceptions that top level decision-making is characterised by an active search for big opportunities in the businesses. On further analysis of the differences between the years in their businesses it can be seen that the employees that have been working in their businesses for eleven years and more are of the opinion that top level decision making is characterised by an active search for big opportunities in the businesses.

With regard to the stated hypothesis it can be deduced that:

Hypothesis Ho2 is rejected: There is no statistical difference in terms of the years that the employees have been working and the perceptions that top level decision-making is characterised by an active search of big opportunities in South African short-term insurance businesses.

6.4.3 The relationship of the perceptions that top level decision-making is characterised by large, bold decisions despite uncertainties of the outcomes (DV) and the years in working in the business (IV)

Table 6.12 indicates that there is a significant statistical difference between the years that the employees have been working in their business and the perceptions that top level decision-making is characterised by large, bold decisions despite uncertainties of the outcomes. When looking at the further analysis it is clear that there is a difference between the employees working for two years and less in their businesses and the employees that have been working for three years and more in their businesses. The employees that have been working for three years or more in their business indicate that top management makes large, bold decisions despite uncertainties of the outcomes.

In terms of the stated hypothesis it can be deduced that:

Hypothesis Ho3 is rejected: There is no statistical difference in terms of the years that the employees have been working in South African short-term insurance businesses and the perceptions that top level decision-making is characterised by large bold decisions despite uncertainties of the outcomes.

6.4.4 The relationship of the perceptions that top level decision-making is characterised by compromises among conflicting demands of stakeholders (DV) and the years in working in the business (IV)

The stakeholders include the owners, government, management, customers, employees and suppliers. Table 6.12 indicates that there is a significant statistical difference between the years that the employees have been working in their businesses and the perceptions that top level decision-making is characterised by compromises among the conflicting demands of stakeholders. Again with further analysis it is clear that the perceptions of employees that have been working in their businesses for two years and less are different from those of the employees that have been working for longer in the business.

In terms of the stated hypothesis the following can be deduced:

Hypothesis Ho4is rejected: There is no statistical difference in terms of the years that the employees have been working in South African short-term insurance businesses and the perceptions that top level decision-making is characterised by compromises among the conflicting demands of owners, government, management, customers, employees and suppliers are made by a business.

In summary when looking at the analysis of the influence of the various dependent variables (discussed in paragraphs 6.4.1 to 6.4.4) on the independent variable years in business, there is a constant outcome that the perceptions of employees that have been working in their businesses for two years and less differs significantly from those of the employees that have been working for their businesses for three years and longer. There are not significant differences between the employees that have been working for their businesses between three and ten years, and for eleven and more years.

6.4.5 The relationship of the emphasis on continuous improvement in methods of production and/or services delivery (DV) and the business units (IV)

The business unit levels are divided between sales, information technology, claims and administration, and shared services. Table 6.12 indicates that there is a significant statistical difference between how the insurance businesses are characterised in terms of the emphasis on continuous improvement in methods of production and/or service delivery relative to the various business units.

With further analysis there is also proof that there is a significant difference between the employees from the sales business unit and the employees from the claims and administration business unit. There is also a significant difference between the employees from claims and administration and the shared services business unit.

The perceptions of the employees from the sales, and the claims and administration business units are more positive towards how their s are characterised by an emphasis on continuous improvement in methods of production and/or service delivery.

Concerning these variables, the results indicate that Claims and Administration employees' perception is more positive with regard to the emphasis on continuous improvement in methods of production and/or service delivery, than are the other business units.

A possible reason for this finding is because the sales employees and the claims and administration employees are mostly responsible for service delivery, and are therefore more positive in this regard.

In terms of the stated hypothesis, the following can be deduced:

Hypothesis Ho5s rejected: There is no statistical significant difference between the business unit levels and the emphasis that South African short-term insurance businesses places on continuous improvement in methods of production and/or service delivery.

6.4.6 The relationship of top level decision-making is characterised by cautious, pragmatic, step-at-a-time adjustments to problems (DV) and the business units (IV)

From table 6.12 it can be deduced that there is a significant statistical difference between business units and that top level decision-making is characterised by cautious, pragmatic, step-at-a-time adjustments to problems.

What is interesting from the further analysis is that no significant statistical relationship can be found amongst the various business units. When comparing the mean scores it can be seen that the sales employees' perceptions are higher than those of the other business unit employees in terms of how top level decision-making is characterised by cautious, pragmatic, step-at-a-time adjustments to problems.

Regardless of this, in terms of the stated hypothesis it can be deduced that:

Hypothesis Ho6 is rejected: There is no statistical significant difference between the business unit levels in South African short-term insurance businesses and how the top level decision-making is characterised by cautious, pragmatic, step-at-a-time adjustments to problems.

6.4.7 The relationship of risk-taking by executives in exploring new opportunities (DV) and the management levels (IV)

The management levels are divided between top-, middle- and lower management as well as employees in the Call and non-Call Centre. Just for clarity (as indicated previously) the employees that resort under the category Call and non-Call Centre include the following employees: consultants, personal assistants, programmers and media planners.

Table 6.12 indicates that there is a significant statistical difference between the different management levels perceptions on risk-taking by executives in exploring new opportunities. In terms of the industries' executives taking risks in exploring new opportunities, the top management's perception differs significantly from the other management levels. The other management levels indicate that their businesses top and

senior managers take a lot of risks in exploring new opportunities. This could be that the other management levels are not involved in exploring these new opportunities, and therefore they might perceive it as more risky.

With regard to the hypothesis it can be deduced that:

Hypothesis Ho7s rejected: There is no statistical significant difference between the management levels in South African short-term insurance businesses and how the executives take risks in exploring new opportunities.

6.4.8 The relationship of a "live and let live" philosophy in dealing with competitors (DV) and the management levels (IV)

A significant statistical difference is shown in table 6.12 between the various management levels and the way in which the businesses are characterised by a "live and let live" philosophy in dealing with competitors.

After more rigorous analysis of these two variables it is clear that top management's perceptions differ significantly from lower management's as well as from the employees of the call and non-call centre. The perceptions of the middle management also differ significantly from those of the employees from the call and non-call centre. Overall there is a difference between the top and middle management's perceptions and the rest of the employees in their businesses. Lower management and the call and non-call centre employees are of the opinion that the businesses' has a "live and let live" philosophy in dealing with competitors. In this regard top management disagrees with this philosophy.

In terms of the stated hypothesis, the following can be deduced:

Hypothesis Ho8s rejected: There is no statistical significant difference between the management levels in South African short-term insurance businesses and the "live and let live" philosophy in dealing with competitors.

6.4.9 The relationship of how top level decision-making is characterised by cautious, pragmatic, step-at-a-time adjustment to problems (DV) and the management levels (IV)

Table 6.12 indicates that there is a significant statistical difference between the employees' perceptions in the different management levels in their businesses and the way in which top-level decision-making is characterised by cautious, pragmatic, step-at-a-time adjustment to problems.

With further analysis it is clear that middle management's perceptions differ significantly from lower management and the employees from the call and non-call centre. There is no significant difference between top and middle management's perceptions.

It can be deduced, from the stated hypothesis that:

Hypothesis Ho9s rejected: There is no statistical significant difference between the management levels in South African short-term insurance businesses and how top level decision-making is characterised by cautious, pragmatic, step-at-a-time adjustments to problems.

6.4.10 The relationship of how top level decision-making is characterised by large, bold decisions despite uncertainties of the outcomes (DV) and the management levels (IV)

Table 6.12 shows that there is a significant statistical difference between the perceptions of the employees on the various management levels on how top level decision-making in their businesses is characterised by large, bold decisions despite uncertainties of the outcomes.

From a more rigorous analysis it can be indicated that there is a significant statistical difference between middle management and lower management, as well as between lower level management and the call and non-call centre employees. There is no difference between top and middle management in terms of their perception that top management makes bold decisions despite uncertainties of the outcomes. The means of the different

management levels indicate that top level management disagrees that large, bold decisions are made despite uncertainties of the outcomes.

It can be deduced that:

Hypotheses Ho10is rejected: There is no statistical significant difference between the management levels in South African short-term insurance and how top level decision-making is characterised by large, bold decisions despite uncertainties of the outcomes.

6.4.11 The relationship of how top level decision-making is characterised by compromises among conflicting demands of stakeholders (DV) and the management levels (IV)

There is a significant statistical difference between the various management levels on the perceptions that top level decision-making is characterised by compromises among conflicting demands of stakeholders (owners, government, customers, employees and suppliers).

With further analysis there is also a statistical difference between middle and lower management, as well as between lower management and the employees from the call and non-call centre. There is no statistical significant difference between top level management and any of the other employees. This could be that top management is of the opinion that they do not make compromises, and that all the stakeholders are treated equally, but middle and lower management employees disagree in this regard.

From the stated hypothesis it can be deduced that:

Hypotheses Ho11 is rejected: There is no statistical significant difference between the management levels in South African short-term insurance businesses and how top level decision-making is characterised by compromises among conflicting demands of owners, government, management, customers, employees and suppliers.

From all the dependent variables and independent variables listed in table 6.12 there are only statistical differences between a few variables (as discussed in paragraphs 6.4.1 to

6.4.11). It is interesting that there are not more statistical differences between the various business units and the management levels. The researcher expected that there would be significant statistical differences in terms of how the insurance businesses are characterised by the seeking of unusual, novel solutions by senior management to problems, as well as the emphasis on continuous improvement of production and/or service delivery in terms of the years that the employees have been working in their businesses and the various management levels.

Next the degree of entrepreneurship as a component of entrepreneurial intensity will be reported on in table 6.13.

The degree of entrepreneurship is measured on a 5-point Likert scale ranging from 1 – strongly disagree to 5 – strongly agree. On the premises of this scale it can be concluded that the business has a moderate degree of entrepreneurship because the average mean scores are around 3 to 4 out of 5. In chapter 7 this finding will be elaborated on with regard to the shortcomings of the degree of entrepreneurship.

In terms of the stated hypothesis it can be deduced that:

Hypothesis Ho12 is accepted. The degree of entrepreneurship in South African short-term insurance businesses is not high.

The frequency of entrepreneurship refers to how many entrepreneurial events take place in a given period of time (Morris, *et al.*, 2008:69).

The EPI uses 9 questions to determine a business's frequency of entrepreneurship. With these 9 questions there is a clear distinction between the products, services and processes. For purposes of this study the products and services questions are combined, because of the nature of the businesses, therefore only 5 questions were used to determine the frequency of entrepreneurship.

TABLE 6.13 Results of the variables of the degree of entrepreneurship

	Variable	N	1	2	3	4	5	Mean	Standard deviation
1	A high rate of new product/service introductions, compared to competitors (including new features and improvements)	385	1	4	18	**51**	26	3.96	0.82
2	An emphasis on continuous improvements in methods of production and/or service delivery	386	1	5	11	**54**	29	4.04	0.83
3	Risk-taking by key executives in seizing and exploring chancy growth opportunities	383	3	10	**42**	36	9	3.37	0.90
4**	A "live and let live" philosophy in dealing with competitors	384	4	12	**40**	37	7	3.32	0.91
5	Seeking of unusual, novel solutions by senior management to problems via the use of "idea people", brainstorming, etc.	385	3	15	28	**42**	12	3.46	0.98
6**	A top management philosophy that emphasises proven products and services, and the avoidance of heavy new product development costs	385	1	14	**41**	34	10	3.37	0.88
Top level decision-making that is characterised by:									
7**	Cautious, pragmatic, step-at-a-time adjustments to problems	385	3	20	30	**41**	6	3.27	0.94
8	Active search for big opportunities	383	3	6	25	**49**	17	3.72	0.91
9	Rapid growth as the dominant goal	373	2	10	32	**42**	14	3.53	0.93
10	Large, bold decisions despite uncertainties of the outcomes	382	3	28	**40**	22	7	3.00	0.95
11**	Compromises among the conflicting demands of owners, government, management, customers, employees and suppliers	380	2	16	**48**	29	5	3.18	0.82
12	Steady growth and stability as primary concerns	381	2	7	25	**50**	16	3.71	0.88
**Questions 4, 6, 7 and 11 are reversed									

The results on the frequency of entrepreneurship will be presented as follows:

- number of new products/service that the insurance business introduced during the past two years (2007 – 2009) – table 6.14 and figure 6.9;
- number of new processes that the insurance businesses implemented during the past two years (2007 – 2009) – table 6.15 and figure 6.10;
- number of new product improvements or revisions that the individual respondents introduced during the past two years (2007 – 2009) compared to previous years – table 6.16 and figure 6.11;

- number of new product introductions compared with major competitors in the industry – table 6.17 and figure 6.12; and
- degree to which new product introductions include products that did not previously exist in the market – table 6.18 and figure 6.13.

Further analysis was also conducted in terms of the frequency of entrepreneurship and is presented as follows:

- the influence of various independent variables (number of years in the insurance business, business unit, management level, and years in current job) on the dependent variable product improvements/revisions introduced by individuals in their business – table 6.19;
- the influence of various dependent variables (number of years in the insurance business, business unit, management level, and years in current job) on the dependent variable new product improvements/revisions compared to competitors in the industry – table 6.20; and
- the influence of various independent variables (number of years in the business, business unit, management level, and years in current job) on the dependent variable number of new product introductions that did not previously exist in the market ("new market").

TABLE 6.14 Number of new products/services that the insurance business introduced during the past two years (2007 – 2009)

Number of new products/services introduced by the business	Frequency (n)	Percentage
0 – 5	141	38
6 – 10	51	14
> 10	12	3
Don't know	167	45
Total	**371**	**100**

FIGURE 6.9 Number of new products/services that the insurance business introduced

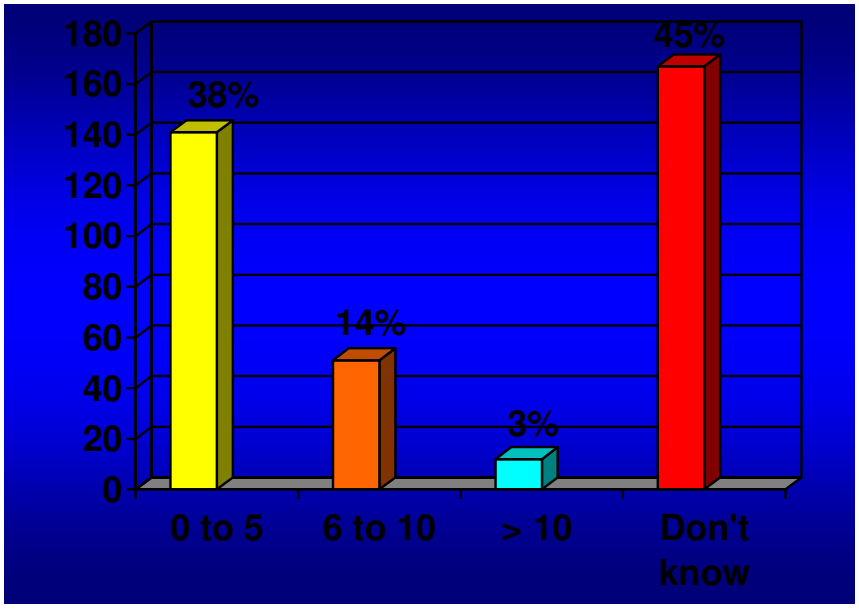


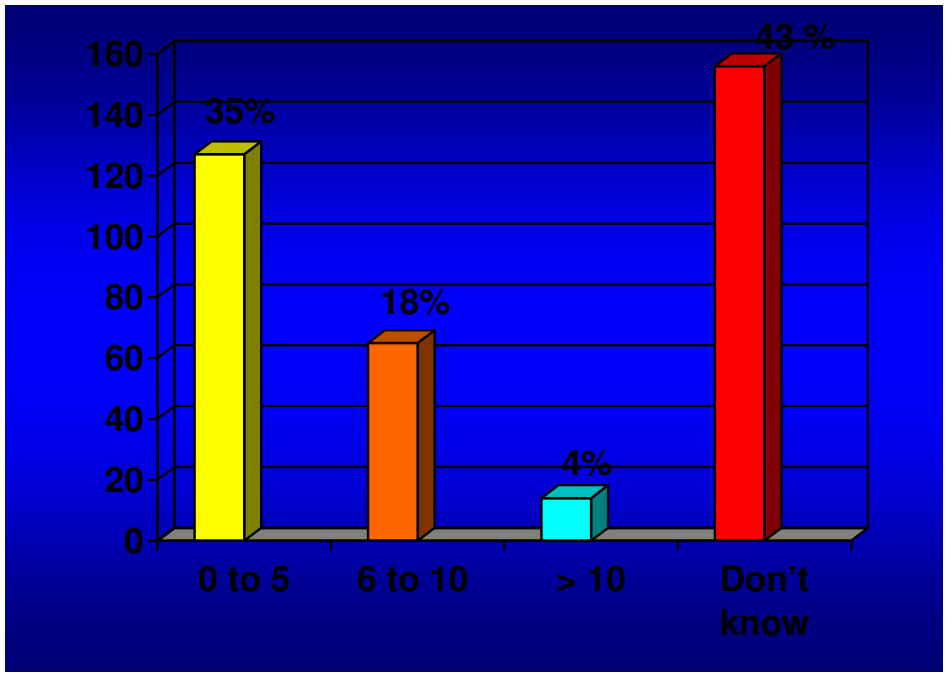
Table 6.14 and figure 6.9 indicate that 45 % of the respondents don't know how many products or services their businesses introduced during the past two years. A large number of respondents (45%) indicated that they had been working for their business for less than 2 years (refer to table 6.5 and figure 6.5). These relatively new employees may not be aware of all the products and services offered by their business. A possible reason for this is that these new products/services introduced in the insurance business are not clearly communicated throughout the business and/or that a culture regarding new product innovation is not present in their businesses.

From the results presented in table 6.15 and figure 6.9 it can be deduced that most of the new products and services introduced during the last two years (2007 to 2000) range between 0 – 5.

TABLE 6.15 Number of new processes that the insurance business implemented during the past two years (2007 – 2009)

Number of new processes implemented by the business	Frequency (n)	Percentage
0 – 5	127	35
6 – 10	65	18
> 10	14	4
Don't know	156	43
Total	**362**	**100**

FIGURE 6.10 Number of new processes that the insurance business implemented during the past two years (2007 – 2009)



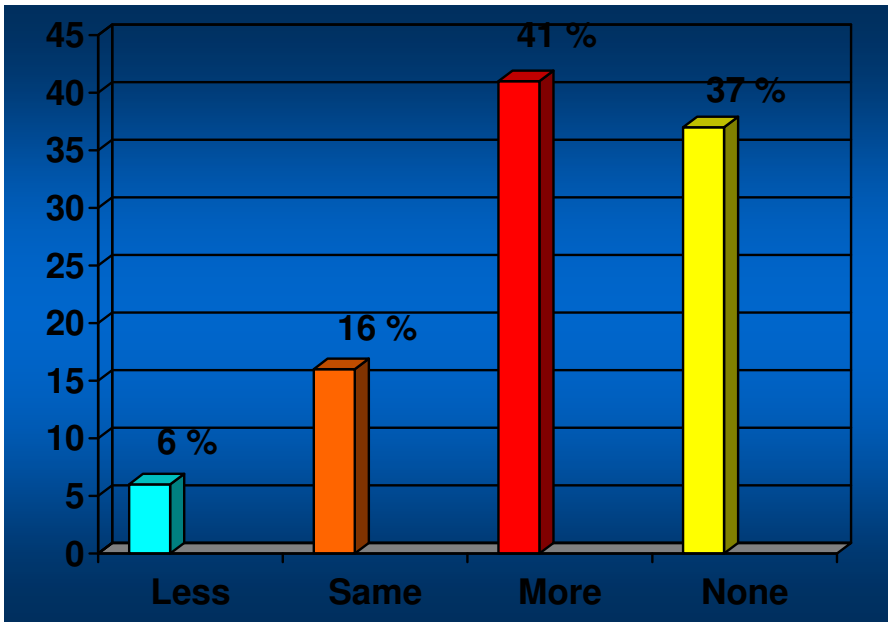
The results of the number of new processes implemented by the insurance business in the last two years is almost the same as the number of new products and services introduced by the business over the same period of time. As can be seen in table 6.15 and figure 6.10 43 % of the respondents don't know how many new processes were implemented by their business. Thirty five per cent of the respondents indicated that between 0 and 5 new processes were implemented and 18% of the respondents indicated that 6 to 10 new

processes were implemented. The same argument as offered with regard to table 6.14 and figure 6.9 can be used for the implementation of new processes.

TABLE 6.16 Number of new product improvements or revisions that the individual respondents introduced during the past two years (2007 – 2009) compared to previous years

Number of new product improvements/revisions of individual respondents introduced	Frequency (n)	Percentage
Less	23	6
Same	56	16
More	147	41
None	132	37
Total	**358**	**100**

FIGURE 6.11 Number of new product improvements or revisions that the individual respondents introduced during the past two years (2007 – 2009) compared to previous years



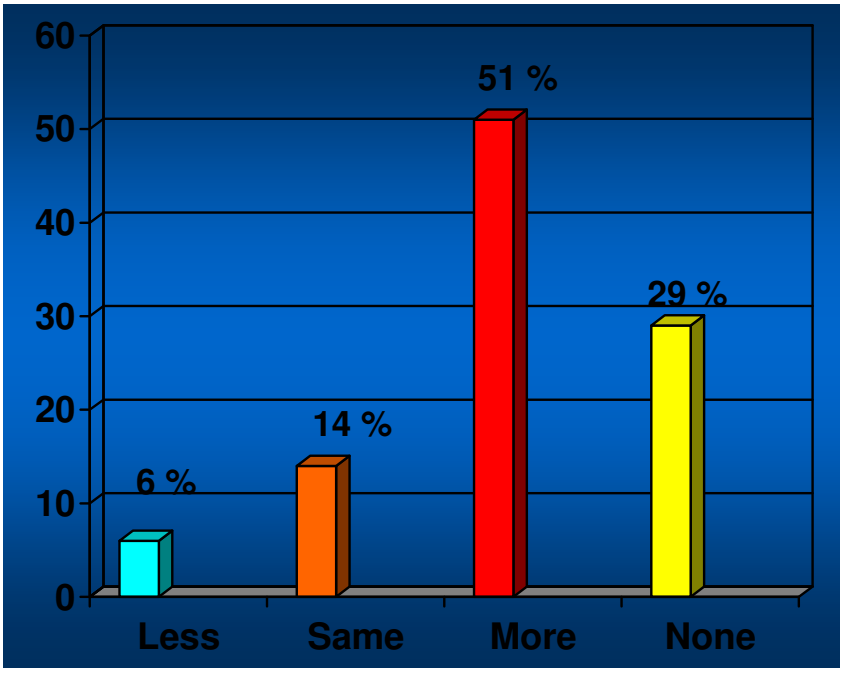
From table 6.16 and figure 6.11 it is evident that 41% of respondents indicated that as an individual they introduced more product improvements or revisions during the last two years (2007 to 2009) compared to previous years. This is a good sign especially when

compared to the 6% of respondents that had less new improvements or revisions than the previous two years. It is not a good sign that 37% of the respondents had no new product improvements or revisions. This finding is in contradiction with the findings as presented in table 6.12. In table 6.12 it was indicated that the businesses can be characterised by a high rate of new products/services but in this statistic it is indicated that the individual respondents did not have a high number of new product improvements.

TABLE 6.17 Number of new product introductions compared with major competitors in the industry

Number of new product introductions compared with major competitors	Frequency (n)	Percentage
Less	23	6
Same	20	14
More	188	51
None	107	29
Total	**368**	**100**

FIGURE 6.12 Number of new product introductions compared with major competitors in the industry

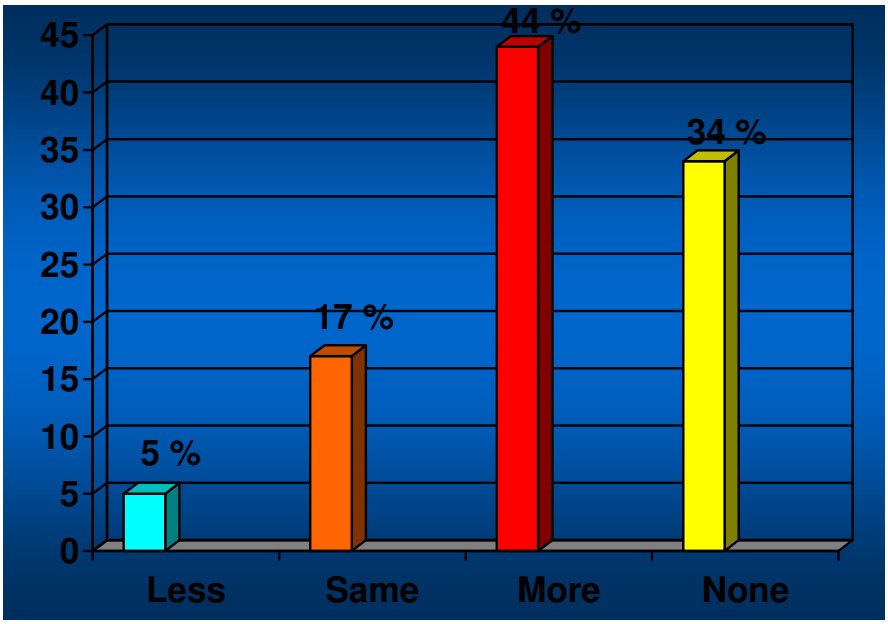


The majority of the respondents (51%) according to table 6.17 and figure 6.12 indicated that their business compared well with their businesses' major competitors in the industry.

TABLE 6.18 Degree to which new product introductions include products that did not previously exist in the market

Degree to which new product introductions include products that did not previously exist in the market	Frequency (n)	Percentage
Less	19	5
Same	63	17
More	163	44
None	124	34
Total	**369**	**100**

FIGURE 6.13 Degree to which new product introductions include products that did not previously exist in the market



It is very important for any business to introduce new products or services to a market and also to determine the effect of these products or services that did not exist previously in the market. Table 6.18 and figure 6.13 show that the insurance businesses introduced 44 % more new products or services to the market that did not previously exist in the market. These findings contradict the findings as illustrated in table 6.14 and figure 6.9 where

respondents indicated the number of new products and services that their businesses introduced during the past two years (2007 – 2009). In table 6.14 it was indicated that between 0 to 5 new products and services were introduced. This could hardly be 44 % more than what previously existed in the market.

From the results presented in terms of the frequency of entrepreneurship a few contradictions exist and it indicates that the overall frequency of entrepreneurship is not very high. In terms of the stated hypothesis it can be deduced that:

Hypothesis Ho13 is accepted. The frequency of entrepreneurship in South African short-term insurance businesses is not high.

The degree and frequency of entrepreneurship need to be combined to determine the entrepreneurial intensity. Because the degree and frequency of entrepreneurship is not high, the following can be deduced of hypothesis Ho14.

Hypothesis Ho14 is accepted: The entrepreneurial intensity in South African short-term insurance businesses is not high.

To analyse the frequency of entrepreneurship more rigorously the influence of various independent variables on dependent variables was determined. The results of this analysis are presented in tables 6.19 to 6.21.

TABLE 6.19 The influence of various independent variables on the dependent variable: product improvements/revisions introduced by individuals in the business

Independent variables	1 – 2 Less		3 Same		4 – 5 More		6 None		Chi-square P-value
	N	%	N	%	N	%	N	%	
Number of years in the business									**0.0300*** **
< 2 years	8	5	25	16	54	34	70	45	
3 – 10 years	8	6	21	14	66	45	52	35	
≥ 11 years	6	11	10	19	27	51	10	19	
Business unit									**0.0264*** **
Sales	4	10	6	15	19	49	10	26	
Information Technology	0	0	3	13	14	58	7	29	
Claims and Admin	16	8	36	17	68	32	89	43	
Shared Services	3	4	9	12	42	54	23	30	
Management level									0.0850
Top management	3	8	12	32	16	42	7	18	
Middle management	3	9	4	11	18	51	10	29	
Lower management	3	4	8	11	31	43	30	42	
Call and non-Call centre	12	6	31	15	80	39	84	40	
Years in current job									0.0573
< 1 year	6	4	21	16	44	33	64	47	
1 – 2 years	10	8	21	17	60	47	36	28	
≥ 3 years	7	7	13	14	42	45	32	34	
p*** statistical significance at the 5 % level									

According to the results presented in table 6.19 there is a significant statistical correlation between the product improvements/revisions introduced by the individuals in their businesses in terms of the number of years that the individuals have been employed in their businesses and in the different business units. The individuals that have been employed within their businesses for three years and more have more product improvements/revisions compared to the individuals that have been employed for less than two years in the business. The individuals that have been employed in their businesses for eleven years and more have the most number of new products improvement/revisions. These findings support the findings as indicated in table 6.12.

The individuals employed in the claims and administration department have the lowest number of new product improvements/revisions in their businesses. This makes sense because the claims and administrative employees only deal with the administration side of the short-term insurance. The claims and administrative employees do not get into contact with the target markets on the same level as the other employees. The information technology and shared services employees introduced the most new product improvements/revisions.

There is no significant statistical correlation between the number of product improvements/revisions introduced by the individuals in their businesses and the management levels and the years in their current job.

From the stated hypotheses in this regard the following can be deduced:

Hypothesis Ho15 is rejected: There is no statistical significant difference between the years working in South African short-term insurance businesses and the number of product improvements/revisions.

Hypothesis Ho16 is accepted: There is no statistical significant difference between years in current job in South African short-term insurance businesses and the number of product improvement/revisions.

Hypothesis Ho17 is rejected: There is no statistical significant difference between the business units in South African short-term insurance businesses and the number of product improvement/revisions.

Hypothesis Ho18 is accepted: There is no statistical significant difference between the management levels in South African short-term insurance businesses and the number of product improvements/revisions.

TABLE 6.20 The influence of various independent variables on the dependent variable: new product improvements/revisions compared to competitors in the industry

Independent variables	1 – 2 Less		3 Same		4 – 5 More		6 None		Chi-square P-value
	N	%	N	%	N	%	N	%	
Number of years in the business									**0.0199*** **
< 2 years	10	6	23	14	69	42	61	38	
3 – 10 years	10	7	20	13	82	55	38	25	
≥ 11 years	2	4	7	13	37	68	8	15	
Business unit									0.4968
Sales	4	10	6	15	17	41	14	34	
Information Technology	0	0	2	8	11	46	11	46	
Claims and Admin	15	7	26	12	117	54	58	27	
Shared Services	4	5	13	17	38	49	22	29	
Management level									**0.0158*** **
Top management	6	15	7	17	22	55	5	13	
Middle management	2	6	6	17	20	55	8	22	
Lower management	1	1	7	9	47	64	19	26	
Call and non-Call centre	13	6	28	13	97	46	74	35	
Years in current job									0.2408
< 1 year	7	5	14	10	67	48	51	37	
1 – 2 years	9	7	22	16	69	52	33	25	
≥ 3 years	7	8	13	14	52	55	22	23	
p*** statistical significance at the 5 % level									

Table 6.20 indicates that there is a significant statistical difference between the perceptions of employees and those of the different management levels, on new product improvements/revisions compared to competitors, in terms of the number of years that the employees/managers have been employed by their businesses. The employees that have been working for eleven years and more, and lower management employees, indicated that their businesses compared favourably in terms of new product improvements/revisions and their major competitors in the industry. When comparing these results with table 6.12 there is confirmation of the fact that the employees that have been working in their

businesses for more than eleven years state that their business compares favourably with new products compared to their competitors in the industry.

With regard to the stated hypotheses the following can be deduced:

Hypothesis Ho19 is rejected: There is no statistical significant difference between the years working in South African short-term insurance businesses and the number of product improvements/revisions compared with competitors.

Hypothesis Ho20 is accepted: There is no statistical significant difference between years in current job in South African short-term insurance businesses and the number of product improvement/revisions compared with competitors.

Hypothesis Ho21 is accepted: There is no statistical significant difference between the business units in South African short-term insurance businesses and the number of product improvement/revisions compared with competitors.

Hypothesis Ho22 is rejected: There is no statistical significant difference between the management levels in South African short-term insurance businesses and the number of product improvements/revisions compared with competitors.

In table 6.21 there is a significant statistical difference between the perceptions of the number of new product introductions by their businesses that did not previously exist in the market in terms of the number of years that employees have been employed in the business, the management levels, and the years that the employees have been working in their current job.

TABLE 6.21 The influence of various independent variables on the dependent variable: number of new product introductions that did not previously exist in the market ("new market")

Independent variables	1 – 2 Less		3 Same		4 – 5 More		6 None		Chi-square P-value
	N	%	N	%	N	%	N	%	
Number of years in the business									**0.0001*** **
< 2 years	5	3	35	22	48	29	75	46	
3 – 10 years	7	5	23	15	82	54	39	26	
≥ 11 years	6	11	5	9	33	61	10	19	
Business unit									0.7383
Sales	2	5	8	19	15	37	16	39	
Information Technology	1	4	4	17	10	42	9	37	
Claims and Admin	15	7	36	17	94	43	71	33	
Shared Services	1	1	11	14	40	51	26	34	
Management level									**0.0058*** **
Top management	4	10	11	27	20	50	5	13	
Middle management	1	3	9	25	18	50	8	22	
Lower management	4	5	9	12	41	54	22	29	
Call and non-Call centre	8	4	33	16	82	39	88	41	
Years in current job									**0.0044*** **
< 1 year	6	4	23	17	48	34	62	45	
1 – 2 years	7	5	28	21	60	45	38	29	
≥ 3 years	6	6	11	12	55	58	23	24	

p*** statistical significance at the 5 % level

The employees that have been working in their businesses for eleven years and more, have the highest perception of the number of new product introductions that did not previously exist in the market. This confirms previous results as indicated in table 6.12.

The employees in the Call and non-Call centre indicated that they do not have a lot of knowledge about the comparison of new product introduction that did not previously exist in the market. All the other management levels (top, middle and lower management) indicated that their business has more new product introductions that include products that did not previously exist in the market.

The employees that have been in their current job for less than a year have no knowledge about the degree of new product introductions that include products that did not previously exist in the market.

From table 6.21 it can be concluded that the following hypotheses are rejected and accepted.

Hypothesis Ho23 is rejected. There is no statistical significant difference between the years in South African short-term insurance businesses and the number of product improvements/revisions that include products that did not previously exist in the market ("new to the market").

Hypothesis Ho24 is rejected. There is no statistical significant difference between years in current job in South African short-term insurance businesses and the number of product improvement/revisions that include products that did not previously exist in the market ("new to the market").

Hypothesis Ho25 is accepted. There is no statistical significant difference between the business units in South African short-term insurance businesses and the number of product improvement/revisions that include products that did not previously exist in the market ("new to the market").

Hypothesis Ho26 is rejected. There is no statistical significant difference between the management levels in South African short-term insurance business and the number of product improvements/revisions that include products that did not previously exist in the market ("new to the market").

6.5 Results of the respondents' perception of the workplace and insurance business

The CEAI was used to determine the perception of employees in the workplace of the business. The CEAI distinguishes five distinctive organisational antecedents which form the dependent variables of this study. These five antecedents are: managerial support, work discretion, rewards/reinforcements, time availability and organisational boundaries. These antecedents and the CEAI were discussed in chapter 3. A summary of the meaning of these antecedents (from chapter 3) is as follows:

- Managerial support refers to the willingness of top-level managers to facilitate and promote entrepreneurial behaviour, including the championing of innovative ideas and providing the resources people require for taking entrepreneurial actions.

- Work discretion/autonomy refers to top-level managers' commitment to tolerate failure, provide decision-making latitude and freedom from excessive oversight and to delegate authority and responsibility to managers.

- Rewards/reinforcement refers to developing and using systems that reinforce entrepreneurial behaviour, highlight significant achievements and encourage pursuit of challenging work.

- Time availability refers to evaluating workloads to ensure that individuals and groups have the time needed to pursue innovations and that their jobs are structured in ways that support efforts to achieve short- and long-term organisational goals.

- Organisational boundaries refer to precise explanations of outcomes expected from organisational work and development of mechanisms for evaluating, selecting and using innovations.

Hypotheses 27 to 36 are formulated in relation to these dependent variables and various independent variables. The one-sample chi-square test is carried out to indicate significant differences of the variables of interest posed in this study and is a determinant of accepting

or rejecting the null hypotheses 27 to 36. The significance level calculated for each of these variables provides information about the reliability of that correlation and provides a means to improve the reliability of the measure by indicating how free it is of errors from other causes.

The level of significance used in this study is 0.05. This measure indicates $p>0.05$ and implies that there are no differences. Conversely measures of $p<0.05$ reveal that a statistical significance has been observed suggesting the real difference to have occurred from the causes. It will be on this basis that the study will examine and draw its conclusions on the reflected results.

TABLE 6.22 Overall ANOVA in terms of biographical variables and the dependent variables

Factors	Mean Square	F Value	Pr Value
Management support	1.63	1.72	0.0295
Work discretion	3.87	4.58	<.0001***
Rewards/reinforcement	0.94	0.99	0.4775
Time availability	2.08	2.21	0.0023***
Organisational boundaries	2.66	3.00	<.0001***
p*** statistical significance at the 5 % level			

In terms of the biographical data of this sample and the various factors there is a significant statistical difference in terms of work discretion, time availability and organisational boundaries. No statistical difference is found in terms of management support and rewards/reinforcement.

TABLE 6.23 Mean scores of the corporate entrepreneurial factors

Factor	Frequency (n)	Mean	Standard Deviation
Management support	375	3.15	0.53
Work discretion	375	3.30	0.41
Rewards	375	3.32	0.71
Time availability	375	3.00	0.47
Organisational boundaries	375	2.73	0.65

From the mean scores presented in table 6.23 it is clear that the overall perception of the corporate entrepreneurial climate is moderate. Respondents had to indicate their perceptions on a 5-point likert scale ranging from strongly disagree to strongly agree. From this analysis it is clear that respondents agrees mostly in terms of the rewards that are in place. This is supported by the statistics as provided in table 6.22 where it was indicated that there is no statistical significant difference in all the biographical areas. The areas that need most attention are time availability and organisational boundaries.

TABLE 6.24 Relationship between management supports in terms of respective independent variables

Independent variables	Mean Square	F Value	P Value (ANOVA)
Gender	0.01	0.01	0.9088
Age	1.16	1.23	0.2998
Ethnicity	0.67	0.71	0.5446
Highest qualification	0.37	0.39	0.6754
Years in business	0.18	0.20	0.8198
Business unit	0.97	1.02	0.3835
Management level	4.30	4.53	**0.0039*** **
Years in current job	0.68	0.72	0.4860
p*** statistical significance at the 5 % level			

Considering all the independent variables in relation to management support there is only a significant difference in terms of the different management levels. This means that the employees on the different management levels (top, middle, lower, call centre and non-call centre employees) have different perceptions on top-level management's willingness to facilitate and promote entrepreneurial behaviour within the business and making resources available that people require taking entrepreneurial actions.

TABLE 6.25 Mean scores of the management levels in terms of management support

Management level				
Level			Frequency (n)	Means
a	Top management	a<d	40	3.4
b	Middle management	b<c b<d	35	3.6
c	Lower management		71	3.2
d	Call and non-Call centre employees		204	3.1
Symbols with < indicate that there is a significant difference at the 5% level				

After a rigorous analysis of the management levels in terms of management support there it is found that there is a significant statistical difference between top management and the employees of the call and non-call centre. Middle management also differs from lower management and the employees of the call and non-call centre employees. There is no statistical difference between top management and middle and lower management; and between lower management and the call and non-call centre employees. The mean scores also support this finding.

In terms of hypotheses Ho27 and Ho28 the following can be deduced:

Hypothesis Ho27 is rejected. There is no statistical significant difference between the corporate entrepreneurship opinions of the managers and employees in South African short-term insurance businesses regarding the corporate entrepreneurship construct: managerial support for corporate entrepreneurship.

Hypotheses Ho28 is accepted. There is no statistical significant difference between the corporate entrepreneurship opinions of the different business unit levels in South African short-term insurance businesses regarding the corporate entrepreneurship construct: managerial support for corporate entrepreneurship.

TABLE 6.26 Relationship between work discretion in terms of respective independent variables

Independent variables	Mean Square	F Value	P Value (ANOVA)
Gender	1.81	2.14	0.1442
Age	0.59	0.70	0.5894
Ethnicity	1.59	1.88	0.1328
Highest qualification	0.89	1.06	0.3483
Years in insurance business	3.47	4.10	**0.0174*** **
Business unit	1.67	1.98	0.1170
Management level	3.74	4.43	**0.0046*** **
Years in current job	0.04	0.06	0.9445
p*** statistical significance at the 5 % level			

The p-value indicates that there is a significant statistical difference between the years that the employees have been in the business as well as the different management levels in terms of work discretion. This means that the longer the employees are working in the insurance business the more they perceive top level management to be committed to tolerate failure; to provide decision-making latitude and freedom from excessive oversight and delegation of authority and responsibility to managers. There is also a significant statistical difference between the various management levels on their perception about work discretion.

No statistical difference could be found between gender, age, ethnicity, qualification, business units and years in present jobs.

After a rigorous analysis of the significant statistical differences in terms of work discretion the following findings can be reported.

TABLE 6.27 Mean scores of the years employed by the business in terms of work discretion

Years in business				
Years			**Frequency (n)**	**Means**
a	0 – 2 years	a<c	156	3.2
b	3 – 10 years	b<c	139	3.2
c	11 – 20 years		55	3.7
Symbols with < indicate that there is a significant difference at the 5% level				

A significant statistical difference exists between the employees that have been working in their business for less than two years and those employees that have been working for eleven years and more. There is also a significant statistical difference between the employees that have been working for three to ten years and those employees that have been working for more than eleven years.

TABLE 6.28 Mean scores of management level in terms of work discretion

Management level				
Level			**Frequency (n)**	**Means**
a	Top management	a<d	40	3.7
b	Middle management	b<c b<d	35	3.8
c	Lower management		71	3.3
d	Call and non-Call centre employees		204	3.2
Symbols with < indicate that there is a significant difference at the 5% level				

Table 6.28 shows that there is a significant statistical difference between top management and the call and non-call centre employees. There is also a difference between middle management and lower management as well as between middle management and the call and non-call centre employees. The findings for the different management levels in terms of work discretion are the same as for management support. When looking at the mean scores it seems as if top and middle management employees are more positive towards their businesses' work discretion.

In terms of the stated hypotheses the following can be deduced:

Hypothesis Ho29 is rejected. There is no statistical significant difference between the corporate entrepreneurship opinions of the managers and employees in South African short-term insurance businesses regarding the corporate entrepreneurship construct: work discretion.

Hypothesis Ho30 can be accepted. There is no statistical significant difference between the corporate entrepreneurship opinions of the different business unit levels in South African short-term insurance businesses regarding the corporate entrepreneurship construct: work discretion.

TABLE 6.29 Relationship between rewards/reinforcement in terms of respective independent variables

Independent variables	Mean Square	F Value	P Value (ANOVA)
Gender	0.94	0.99	0.3194
Age	0.62	0.66	0.6237
Ethnicity	1.32	1.39	0.2448
Highest qualification	0.32	0.34	0.7130
Years in insurance business	1.20	1.27	0.2829
Business unit	0.52	0.56	0.6447
Management level	0.20	0.22	0.8833
Years in current job	1.78	1.88	0.1548
p*** statistical significance at the 5 % level			

The high p-value greater than 0.05 indicates that there is no statistical difference between the various independent variables and the dependent variable rewards/reinforcement. No significant statistical difference exists between rewards/reinforcement and the various independent variables gender, age, ethnicity, highest qualification, years in the business, business units, management levels and years in current job.

It can be deduced that:

Hypothesis Ho31 is accepted. There is no statistical significant difference between the corporate entrepreneurship opinions of the managers and employees in South African short-term insurance businesses regarding the corporate entrepreneurship construct: rewards/ reinforcement.

Hypothesis Ho32 is accepted. There is no statistical significant difference between the corporate entrepreneurship opinions of the different business unit levels in South African short-term insurance businesses regarding the corporate entrepreneurship construct: rewards/ reinforcement.

TABLE 6.30 Relationship between time availability in terms of respective independent variables

Independent variables	Mean Square	F Value	P Value (ANOVA)
Gender	0.31	0.34	0.5629
Age	0.63	0.67	0.6120
Ethnicity	3.89	4.14	**0.0067*** **
Highest qualification	4.63	4.92	**0.0078*** **
Years in insurance business	0.18	0.20	0.8227
Business unit	3.57	3.79	**0.0107*** **
Management level	1.23	1.31	0.2706
Years in current job	3.59	3.82	**0.0230*** **
p*** statistical significance at the 5 % level			

According to the p-value there is a significant statistical difference between the various ethnic groups, the different qualification types of the employees, the business units and the years of employees in their current position in the insurance business.

After rigorous analysis of the significant statistical differences indicated in table 6.30 the following findings can be given according to tables 6.31 to 6.34

TABLE 6.31 Mean scores of ethnicity in terms of time availability

Ethnicity				
Level			**Frequency (n)**	**Means**
a	Black	a<b a<c a<d	42	2.9
b	Coloured		60	2.7
c	Indian or Asian		39	2.6
d	White or Caucasian		209	2.6
Symbols with < indicate that there is a significant difference at the 5% level				

There is a significant statistical difference between the black ethnic group and the Coloureds, Indians or Asians as well as the Whites or Caucasian's. The black ethnic group indicated that their workloads are evaluated to ensure that they have the time needed to pursue innovations and that their jobs are structured in ways that support efforts to achieve short- and long-term organisational goals. With the labour legislation in South Africa this could be the reason why the black ethnic group experience this as more positive. With Broad Based Black Economic Empowerment, more deliberate efforts are made to equip and empower blacks to do their jobs.

TABLE 6.32 Mean scores of highest qualification in terms of time availability

Highest qualification				
Qualification			**Frequency (n)**	**Means**
a	Grade 12 and lower	a<b a<c	175	2.7
b	Post Matric Diploma or Certificate		125	2.6
c	Bachelors Degree(s) and/or Post Graduate Degree (s)		50	2.7
Symbols with < indicate that there is a significant difference at the 5% level				

A significant statistical difference exists between the employees with a grade 12 and lower qualification and the employees with a post matric diploma or certificate and the employees with Bachelors degree(s) and/or Post Graduate Degree(s).

Employees with a Grade 12 and lower qualification indicate that they have more time available for innovations.

TABLE 6.33 Mean scores of business units in terms of time availability

Business unit				
Unit			Frequency (n)	Means
a	Sales		37	2.7
b	Information Technology	b<c	25	2.8
c	Claims and Administration	c<d	211	2.6
d	Call and non-Call centre employees		77	2.8
Symbols with < indicate that there is a significant difference at the 5% level				

Table 6.33 indicates that there is a significant statistical difference between the employees in the information technology business unit level and claims and administration. There is also a difference between the employees of the claims and administration business unit and the call and non-call centre employees. Previously, as indicated in table 6.19, it was also indicated that the Information Technology employees were responsible for the most new product improvements and revisions. These two aspects correlate well.

TABLE 6.34 Mean scores of number of years in current job in terms of time availability

Years in current job				
Level			Frequency (n)	Means
a	0 – 12 months	a<b	132	2.8
b	1 – 2 years		127	2.6
c	3 – more years		91	2.6
Symbols with < indicate that there is a significant difference at the 5% level				

A significant statistical difference exists between the employees that have been working for less than twelve months in their current job and the employees that have worked in their current jobs between one and two years. There is no statistical difference between the employees that have been working for more than three years and the rest of the employees.

The following can be deduced from the stated hypotheses:

Hypothesis Ho33 is accepted. There is no statistical significant difference between the corporate entrepreneurship opinions of the managers and employees in South African short-term insurance businesses regarding the corporate entrepreneurship construct: time availability.

Hypothesis Ho34 is rejected. There is no statistical significant difference between the corporate entrepreneurship opinions of the different business unit levels in South African short-term insurance businesses regarding the corporate entrepreneurship construct: time availability.

TABLE 6.35 Relationship between organisational boundaries in terms of respective independent variables

Independent variables	Mean Square	F Value	Pr Value
Gender	6.67	7.49	**0.0065*** **
Age	0.37	0.42	0.7911
Ethnicity	1.10	1.24	0.2957
Highest qualification	0.01	0.01	0.9878
Years in insurance business	0.31	0.35	0.7016
Business unit	0.94	1.06	0.3656
Management level	7.96	8.95	**<.0001*** **
Years in present job	0.74	0.83	0.4355
p*** statistical significance at the 5 % level			

There is a significant statistical difference in terms of organisational boundaries between males and females as well as between the various management levels.

Organisational boundaries refer to precise explanations of outcomes expected from organisational work and development of mechanisms for evaluating, selecting and using innovations.

After rigorous analysis of these independent variables and organisational boundaries the following findings can be presented.

TABLE 6.36 Mean scores of gender in terms of organisational boundaries

Gender		
Gender	**Frequency (n)**	**Means**
Male	128	2.4
Female	222	2.5

Female perceptions towards organisational boundaries are more positive compared to those of the male respondents.

TABLE 6.37 Mean scores of management level in terms of organisational boundaries

Management level				
Level			**Frequency (n)**	**Means**
a	Top management	a<b a<c a<d	40	2.9
b	Middle management	b<c b<d	35	2.7
c	Lower management		71	2.4
d	Call and non-Call centre employees		204	2.4
Symbols with < indicate that there is a significant difference at the 5% level				

There is a significant statistical difference between top management and the rest of the employees in the businesses (middle and lower management as well as call and non-call centre employees). There is also a difference between middle and lower management as well as between middle management and the employees from the call and non-call centre.

Organisational boundaries refer to precise explanations of outcomes expected from organisational work and development of mechanisms for evaluating, selecting and using

innovations. Top level management's perception of organisational boundaries is more positive than the rest of their businesses' employees.

In terms of the stated hypotheses the following can be deduced:

Hypothesis Ho35 is rejected. There is no statistical significant difference between the corporate entrepreneurship opinions of the managers and employees in South African short-term insurance businesses regarding the corporate entrepreneurship construct: organisational boundaries.

Hypothesis Ho36 is accepted. There is no statistical significant difference between the corporate entrepreneurship opinions of the different business unit levels in South African short-term insurance businesses regarding the corporate entrepreneurship construct: organisational boundaries.

7. CONCLUSION

This chapter addressed various aspects by means of descriptive and inferential statistics. Relevant data was captured and presented in tables and figures. The various statistical techniques that were discussed in chapter five formed the basis for the results that were presented in chapter 6.

Firstly the demographic data of the respondents were presented. The main purpose of this was to describe the outstanding characteristics resembling the profile of the respondents.

The two measuring instruments (EPI and CEAI) have been proved as reliable and valid in previous studies. To confirm the reliability of the CEAI, the Cronbach alpha values were determined. The high Cronbach alpha values supported the fact that the instrument is reliable.

As indicated throughout the study, the Entrepreneurial Health Audit instrument was used in this study. In this regard the results of the businesses entrepreneurial intensity were reported, as well as the perceptions of employees in terms of the workplace and business.

The chi-square, one-way analysis of variance tests, post hoc test and *t*-tests were executed to present the significant statistical differences between the various dependent and independent variables.

In the next chapter (chapter 7) the major purpose and findings of the research study will be summarised. A conclusion and recommendations of this study are presented. The research objectives and hypotheses will be revisited. Finally, limitations of the study, contributions to the field of entrepreneurship and corporate entrepreneurship, and recommendations for further research will be presented.