

An assessment of entrepreneurial orientation at a pipeline gas company

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DECLARATION

I declare that, apart from the assistance acknowledged, the research contained in the dissertation is my own unaided work. It is being submitted in partial fulfilment of the requirements for the degree Master in Business Administration at the Potchefstroom Campus of the North-West University. It has not been submitted before for any degree or examination to any other University.

Nobody, including Dr H. Lotz (Supervisor), but myself is responsible for the final version of this dissertation.

Signature.....

ABSTRACT

Title: Assessment of entrepreneurial orientation at a pipeline gas company

Key terms: Autonomy, innovativeness, risk-taking, pro-activeness, competitive aggressiveness, business growth, business development and improvement, pipeline gas company.

The general aim of the study was to determine the influence of entrepreneurial orientation on the perceived success of the pipeline gas company. This type of study has not been conducted previously for such a pipeline gas company and as such, a valuable contribution could be made to a more effective entrepreneurial orientation in the business environment.

Two questionnaires were administered, which focused on entrepreneurial orientation and perceived success of business respectively. A response rate of 87.63% was obtained from a sample of 97 employees at management level in the pipeline gas company concerned.

The results showed a statistically significant positive relationship between entrepreneurial orientation and business development as variable of business success. The data also revealed correlations among the dimensions of entrepreneurial orientation, some with significant differences for various demographic groups and their level of entrepreneurial skills. Limitations within the study were discussed and recommendations were made for future research.

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CHAPTER 1

THE NATURE AND SCOPE OF THE STUDY

1.1 INTRODUCTION

In today's business environment role-players have to cope with increasing customer demand, fast changing technologies and increasing levels of extreme global competition (Ireland and Webb, 2009: 1). The result is that businesses have to manage continuous change. Most businesses need to compete in the global market place and stay ahead of the pack. Therefore they need to be innovative to keep surviving in this environment. Agrawal and Srivastava (2010: 163) mention that there exist different categories of research conducted on entrepreneurship. These include research on individuals who act as intrapreneurs and implement innovations in the firms that employ them. Most Companies are forced to cut their operational costs and have to lay off employees in order to survive. Some Businesses will go even further by cutting the training budget due to financial difficulties. Ramachandran, Devarajan and Ray (2006: 86) support this finding. They indicate that as a result, businesses that do not continually indorse an innovative way of thinking may be making an unintentional strategic decision to be out of business within a few years.

An entrepreneurial orientation characterises the practices, processes and activities related to decision-making which lead to the improvement and delivery of new products, services or processes (Chan, Chan and Chen, 2007: 999). This orientation is the key success of higher performance in businesses as is suggested consistently in the literature (e.g. Yamada and Eshima, 2009: 1). Competition is rife in most of industries in South Africa, which include sectors such as mining, pipeline gas, clothing, banking, retail and manufacturing. Most companies in these fields need new technology to survive and compete in the international economical arena.

The following dimensions of entrepreneurial orientation have been identified and are used consistently in the literature: innovativeness, pro-activeness and risk-taking (Rauch, Wiklund, Lumpkin and Frese, 2009: 763). Lumpkin and Dess (1996: 136), included the other two dimensions of entrepreneurial orientation, namely autonomy and competitive aggressiveness. For the purpose of this study, all five dimensions of entrepreneurial orientation will be the centre of the research.

Pipeline gas industries contribute to the South Africa economy. However, these industries are also affected by the changing world economic environment, which are affected by external factors, such as the actions of the activist organisation Green Peace, as well as political pressures flowing from political economy.

This chapter explains the problem statement on which this assessment study was based, and provides the objectives of the study. The scope of the study is outlined by providing a summary of the research methodology, lifting out some the limitations of the study and describing the chapter layout. This study will examine managers' perceived success within the pipeline gas company.

1.2 PROBLEM STATEMENT

Pipeline gas industries play a major role in the energy, manufacturing and development sector in South Africa. Therefore innovation and new technology are needed to generate ideas that will sustain these companies' existence and profitability to avoid closing the businesses and possibly retrenching employees. Scheepers, Hough and Bloom (2008: 50) support the statement that enterprises with well-developed entrepreneurial capabilities are able to sustain growth and innovation which help them compete in an unstable economic environment.

Research has shown that entrepreneurial orientation is a process intended to create value in a business. This can be achieved through five dimensions of entrepreneurial

orientation. Bhardwaj, Sushil and Momaya (2007: 131) contend that new value creation can only be developed with a high level of entrepreneurial activity. Scheepers, Bloom and Hough (2008: 17) concurs by stating that an innovative environment is strengthened by the capabilities of human development, and social structures within the enterprise. Madsen (2007: 188) indicated that orientation towards entrepreneurial activities is likely to have positive implications for business performance. This is based on the implicit assumption that companies, who take the lead, are rewarded in a marketplace.

Pipeline gas companies as businesses are facing regulation challenges which can also evoke more competition. Therefore the company must be prepared to face the challenges and the employees should show enough of an entrepreneurial orientation to suggest innovative strategies for sustaining the current profit. An assessment of employees' entrepreneurial orientation was never done at the pipeline gas company on which this study focuses. Therefore it is an appropriate time to measure and improve the entrepreneurial orientation where necessary. The focus of this study is on the entrepreneurial orientation at the pipeline gas company and the managers' perceived success (or failure) of the business.

1.3 OBJECTIVES OF THE STUDY

The objectives of this study are divided into a primary objective and secondary objectives derived from it.

1.3.1 Primary objective

The primary objective of the study is to investigate the relationship between the entrepreneurial orientation of such a pipeline gas company and the managers' perceived success of the business. The aim of the study will be to suggest ways to improve the entrepreneurial orientation, to enhance the innovation and gain a competitive edge in the market.

1.3.2 Secondary objectives

The secondary objectives in support of the primary objective of this research are formulated as follows:

- Gain insight into entrepreneurship by conducting a literature study.
- Study the concept of entrepreneurial orientation.
- Use statistical analysis to determine the reliability of the questionnaire.
- Determine the correlation between entrepreneurial orientation and perceived success of the business.
- Measure the current entrepreneurial orientation in the pipeline gas company by means of questionnaires.
- Determine the demographic differences in terms of age, gender, race, qualification and department, as well as the constructs by measuring the entrepreneurial orientation.
- Determine the perception of managers to the success of the business.
- Make recommendations for future research and practice.

1.4 SCOPE OF THE STUDY

1.4.1 Field of the study

The field of the study falls within the subject-field of entrepreneurship, with special reference to entrepreneurial orientation. The research will focus primarily on a specific pipeline gas company in South Africa, examining its unique challenges, which are significant for its survival.

1.5 RESEARCH METHODOLOGY

The researches based on the specific objective were done in two phases:

Firstly, an in depth literature review to gain a clear understand of entrepreneurial orientation and secondly, an empirical study. Secondly, the research design and research instrument to be used will also be outlined. Issues of data collection and analysis in relation to this study will be examined.

1.5.1 Literature review

The literature review in phase one will be a comprehensive review on intrapreneurship. The following sources will be consulted:

- Books related to the topic
- Published journals
- Credible Internet sources
- Dissertations that dealt with the topic

The literature review will be discussed in chapter two and chapter three.

Chapter two

This chapter contains the literature study. The aim is to provide a comprehensive literature review on the definition of entrepreneurship and entrepreneurial orientation, by focusing on the five dimensions or constructs, namely:

- Innovativeness
- Autonomy
- Risk-taking
- Pro-activeness and
- Competitive Aggressiveness

The term “perceived success of businesses” will be explored in detail in this chapter.

Chapter three

This chapter will focus on findings from the research method employed to achieve the goals of the research project. The research will consist of the following aspects: the research approach, measuring instruments to gather data, the reliability of the questionnaires and methods of data analysis.

1.5.2 Empirical study

The empirical investigation to achieve the objectives of this study is based on the descriptive research approach. According to Malhotra (2007: 82), this type of investigation or research is used when there is a clear need for a problem statement and for detailed information. The present study therefore identified this type of research design as relevant in the study of entrepreneurial orientation and of the perceived success in the Pipeline Gas Company.

The research methods that are used in this type of research design are structured and quantitative in nature (Tustin, Lightelm, Martins and Van Wyk 2005: 86). Quantitative research aims to measure data, in contrast to qualitative research that is unstructured and exploratory and based on samples taken from a specified population (Malhotra, 2007: 143). According to Cameron and Price (2009: 213), the use of data presents substantial practical advantages for a quantitative design, as it allows the drawing of conclusions related to a wider group of data and such data can also be analysed statistically. For the purpose of this study the quantitative approach was selected as the most suitable design to investigate entrepreneurial orientation.

1.5.3 Participants

Participants in this case are defined as an available sample of employees who are working for the pipeline gas company. A random population sample is targeted of managers who are employees for the pipeline gas company concerned. The respondents are also assured of the confidentiality in the use of their answers, also that

their participation is voluntary and that they are free to withdraw from the research at any stage if they want to.

1.5.4 Measuring instruments

1.5.4.1 Reliability and validity

Two key components should be considered when evaluating particular instruments: validity and reliability. According to Bless and Higson-Smith (2000), reliability is concerned with consistency of the instrument, and an instrument is considered highly reliable if it can reach an accurate and consistent dimension of unchanging value. According to Whitelaw (2001: 108), validity refers to how well an instrument measures the particular concept it is supposed to measure. He further points out that an instrument must be reliable before it can be validated, to be reproduced consistently. Thereafter the instrument can be scrutinised to evaluate whether this instrument is what it purports to be.

According to Schmitt (1996: 350), Cronbach's alpha coefficient measures the reliability of the instruments, which is based on the average correlation of variables within the test material. This alpha coefficient always should exceed 0.7, for data to be considered reliable and consistent. Generally, Cronbach's alpha value of 0.7 and higher is acceptable, although Field (2005: 668) states that, when attitudes and not abilities are tested, a Cronbach's alpha score of up to 0.6 could be still acceptable.

1.5.4.2 Instruments

This section consists of the research design, the questionnaire used in the study, the population sample, gathered data and the statistical analysis. Two standardised questionnaires are used in the empirical study. A questionnaire on frequency variables is also included in the measuring sequence. This questionnaire focuses on participants' age, gender, race, education, position and the departments in which they are employed.

The first questionnaire examines the dimensions of entrepreneurial orientation which can be used to measure the level of entrepreneurial orientation amongst the participants. This instrument was adopted from Lotz and van der Merwe (2013).

Lumpkin and Dess (1996) outline five dimensions, namely; autonomy, pro-activeness, innovativeness, risk-taking and competitive aggressiveness. For the purpose of this study, 27 statements will be posed in the first questionnaire to measure the five dimensions of entrepreneurial orientation amongst the targeted population.

The second questionnaire is based on managers' perceived success of the business. This instrument was adopted from Lotz and van der Merwe (2013). The questionnaire comprising 11 statements examined two factors by which to measure perceived success in business, namely business development and improvement, and business growth. The overall values of Cronbach's alpha for dependent and independent variables were found above 0.7, which means the construct were reliable (Nobrega, 2012; Lotz and van der Merwe 2013). A five point Likert-scale was used as a measuring system throughout, with the following scores: "strongly disagree" (1), "disagree" (2), "neither agree nor disagree" (3), "agree" (4) and "strongly agree" (5). The use of the interval scaling method enables the correct use of methods for statistical analyses.

1.5.5 Statistical analysis

In the present study the data is recorded and analysed by using the SPSS and STATISTICA statistical programs (SPSS Inc, 2012; StatSoft, Inc, 2012), with the assistance of the North-West University Statistical Consulting Services.

1.6 STUDY LIMITATIONS

This study's contribution will be to gauge the extent of managers' entrepreneurial orientation, and to point out the possible link between entrepreneurial orientation and the impact it has on the perceived success of the pipeline gas company's business. This

type of study was never conducted within this particular gas environment in South Africa. Therefore a valuable contribution could be made as such to a more effective entrepreneurial orientation within this context.

The use of questionnaires in the current research creates a limitation. At best, these relationships could only be analysed and described, but no causativeness established. Therefore, the establishment of relationships in the present study serves only to discover certain patterns. These patterns can be compared with previous theoretical research findings on the chronological relationship between the different variables for dimensions of entrepreneurial orientation and the perceived success of the business enterprise that is investigated.

A further limitation of the study is that it focuses on a sample of employees working at management level for this pipeline gas company in South Africa. Therefore it might not represent the pipeline transportation as a whole.

1.7 LAYOUT OF THE STUDY

The structure of the present study is divided into five chapters, with a more detailed explanation of the contents of each chapter discussed below.

Chapter one

This chapter introduced the content of the topic and explained why this topic was chosen for the research. It contains the problem statement, research objectives, scope of the study, the research methodology and the study's limitations.

The research methodology showed that the research was done both by means of an empirical research and a literature study.

Chapter two

The Literature review will focus on corporate entrepreneurship as a main objective or basis of this research. It will aim to provide a definition of entrepreneurship to further understanding of entrepreneurial orientation and as well as insight into dimensions and characteristics of entrepreneurial thinking. The chapter furthermore will: explore characteristics and types of entrepreneurship; define corporate entrepreneurship and give an overview of the history of entrepreneurial orientation. The conclusion will point out the barriers to corporate entrepreneurship, as well as factors that can determine success of the business enterprise.

Chapter three

This chapter describes the research methodology that will be employed to achieve the goals of the research study. Additional aspects included in the chapter are the research design and measuring instruments to gather data, as well as a discussion of techniques to analyse the data.

Chapter four

This chapter presents the results of the study. The demographic information of the participants for the pipeline gas company is analysed thoroughly. The chapter will also examine the correlation of entrepreneurial orientation and the perceived success of the business constructs to the frequency of demographic. The results will then be discussed by focusing on the implications of these findings.

Chapter five

This chapter concludes with the findings flowing from the preceding chapters. It presents the conclusion that is reached from the research, as well as recommendations for future research on the pipeline gas company.

1.8 SUMMARY

Chapter one provided the introduction and motivation, as well as a focus on the research. This includes the problem statement, primary and secondary objectives, the research methodology, scope of the study, value added by the study, as well as limitations of the study, and lastly the layout of the study in terms of successive chapters.

CHAPTER 2

LITERATURE STUDY ON ENTREPRENEURSHIP

2.1 INTRODUCTION

The purpose of the literature review is mainly to examine key concepts and the related research relevant to dimensions of entrepreneurial orientation and its effect on the perceived success of a business enterprise. The following topics are identified as important: defining entrepreneurship, entrepreneurial characteristics, dimensions of entrepreneurial orientation as independent variable, and perceived success of a business as dependent variable. The dimensions of an entrepreneurial orientation are explored by examining the extent to which the findings from the literature supports the problem statement.

In today's business environment the business enterprises are facing risks and a complex situation. This compels organisations to be more active, and to respond to changes faster than projects and achievements of the competition. Innovativeness is an integral part of any business and has become a basic requirement for many businesses in order to be economically sustainable. Chow (2006: 17) points out the extremely significant negative correlation that currently exists between the environment and entrepreneurial orientation. For Chow this confirms that a favourable environment is necessary to support business entrepreneurs. Success in global business operations requires resourcefulness and entrepreneurial risk-taking. In light of this, Van Wyk and Adonisi (2012: 65) urge that businesses continually have to re-examine their market orientation strategies and adapt flexible policies in serving different stakeholders. Block and Macmillan (2003: 8) argue that for companies to survive in the current dynamic and challenging environment, they require a level of innovativeness, speed and flexibility that were unnoticed a few years ago.

Large businesses are not usually entrepreneurial orientated. Therefore these business enterprises need to promote entrepreneurial behaviours and practices and included it in their business strategy. Ireland *et al.* (2009: 27) state that while entrepreneurial behaviour can be demonstrated through many specific actions, the essence of entrepreneurial behaviour still centres on identifying and exploiting opportunities. Ireland also outlines the processes of entrepreneurship. Ireland *et al.* (2009: 7) concurs with Kuratko and Morris (2006: 14) that businesses understand the active use of entrepreneurship as a source of getting a viable advantage and as a route to higher levels of financial and non-financial performance.

The strategy of any business should include the ability to continue using innovation to enhance its products and business enterprise, or its financial model to focusing on long-term success. Hitt *et al.* (1999: 145) stated that traditionally the design of new products has been done in a chronological manner. They also point out: those firms that use a serial process do assign a designers engineering group to develop the initial product design, which is then transferred to a manufacturing engineering group. Ramachandran *et al.* (2006: 85) indicate that most organisations have the talent. It needs to be discovered and through innovation exploit limited opportunities, as these business enterprises moves from the entrepreneurial to the growing phase. The key to success in the highly competitive and vibrant environment, in which most organisations currently operate, is to retain the ability to keep on being innovative and maintain an entrepreneurial orientation.

2.2 DEFINITION OF BASIC TERMS

2.2.1 Entrepreneurship

Entrepreneurs are viewed as people who take risks by depriving and taking advantage of their employees by applying their ideas to make profit. In reality entrepreneurs are those people who launch and operate a business venture by taking risks and grasping the opportunities that arise. Longenecker *et al.* (2000: 3) define an entrepreneur as

someone who makes an assessment and shapes the free enterprise economic environment of the new millennium by determining new market needs and then introduces new businesses to meet those needs.

Gartner (1990: 15) points out that entrepreneurship means different things to different people. Schumpeter (1934: 85) defines entrepreneurship as the process when a person attempts new combinations, which may entail new products, processes, markets, organizational forms, or sources of supply. According to Spinelli and Adams (2012: 87), entrepreneurship as a way of thinking, reasoning, and acting that is passionate about opportunities, holistic in its approach, and balanced with leadership – to create and capture value.

Entrepreneur is a French word and literally translated, it means: “between-taker” or “go-between” (Hisrich and Peters, 1998: 7). Morris and Kuratko (2002: 23) comment that innovation as such is not sufficient, but needs to be a model to change, provide growth and create value. Hisrich *et al.* (2005: 520) define entrepreneurship as the process of assigning effort and time to create something new with value. This is done by taking into consideration the additional financial, intellectual and social risks and by experiencing the rewards of financial and personal satisfaction and independence in the process.

Shane *et al.* (2003: 206) elaborate on this definition by pointing out that the degree of creativeness involved in entrepreneurial orientation differs across the spectrum of the types of resources that are recombined. Entrepreneurship also involves human support. The entrepreneurial process takes place because people act by grasping opportunities. Agents also differ in their willingness and abilities to act on these opportunities, because of individual predispositions. It can be noted that entrepreneurship is a process of value creation that bring together a unique package of resources with which to exploit an opportunity.

As stated by Govender (2010: 15) the typical definition of entrepreneurship introduces four important aspects:

- Entrepreneurship involves a process. Therefore it is manageable, can be broken down into steps and have no boundaries. It can be applied in any corporation.
- It creates value where none existed previously. This value is created within the organisation and spill over in the market place.
- Entrepreneurs put resources together in a unique way. This entails a combination of money, people procedures, technologies, materials, facilities, packaging, distribution channels, and other resources.
- Entrepreneurship is an opportunity-driven behaviour. It involves pursuing an opportunity, irrespective of the resources that are controlled at a time.

It is clear now that an entrepreneur is someone who put in order, manages, and undertakes the risks of a business or enterprise. This enterprise can also be demonstrative of change in the business environment. Entrepreneurship entails the process of determining new ways of conjoining resources. When the market value created by this new grouping of resources exceeds the market value that these resources can generate elsewhere individually or in another combination, then the entrepreneur makes a profit.

According to Hisrich and Peters (1998: 19), the skills required by entrepreneurs can be classified into three main areas: technical skills, business management skills and personal entrepreneurial skills.

Kuratko and Morris (2002: 23) outline the seven perspectives of an entrepreneur and his/her orientation as follows:

- **Creation of wealth**– entrepreneurship means to take on the risks associated with increased production in exchange to profit.
- **Creation of enterprise** – the founding of a new business venture by entrepreneurship.

- **Creation of innovation** – the unique combination of resources that make existing methods or products outdated.
- **Creation of change** – generating change by adjusting, adapting, and modifying one’s personal range, approaches, and skills to meet different opportunities that are available in the environment.
- **Creation of employment**–using, managing and developing the factors of production and of the labour force by innovative inputs.
- **Creation of value**–creating value for customers by developing opportunities those previously were untapped.
- **Creation of growth**–a strong and positive orientation towards growth in sale, income, assets and labour force.

2.3 ENTREPRENEURIAL CHARACTERISTICS

According to Fattal (2003: 14), since 20 years previously, entrepreneurship has become a much valued element of the world economic fabric. Rao (2004: 35) argues that the discipline of corporate entrepreneurship implies old models and examples that have occurred for more than centuries. Wickham (2004: 3) mentions that entrepreneurs are just managers who make entrepreneurial decisions, which implies that entrepreneurs are not born but made.

Hebert and Link (2009: 241) stated that the word “entrepreneur” is a French coinage. Therefore it is appropriate that the investigation in the present study commences by examining contributions from early French writers on entrepreneurship. Following Schumpeter’s view, entrepreneurs are the perfect innovators and earn their profits, however temporary, from successful innovations. In this, according to the authors, Schumpeter rejected the risk-taking attribute as inherent to entrepreneurs, by assigning it to a capitalist orientation.

Most researchers kept on characterising the special qualities of entrepreneurs, as is illustrated in the table below.

Table 2.1: Characteristics of entrepreneurs

Date	Author	Characteristics
1848	Mill	Risk bearing
1917	Weber	Source of formal authority
1934	Schumpeter	Innovation and initiative
1954	Sutton	Desire for responsibility
1959	Hartman	Source for formal authority
1961	McClelland	Risk-taking, need for achievement
1963	Dauids	Ambition, desire for independence, responsibility and self-confidence
1964	Pickle	Drive/mental, human relations, communication ability and technical knowledge
1971	Palmer	Risk measurement
1971	Hornaday &Aboud	Achievement needs, autonomy, aggression, power, recognition, innovative and independent
1973	Winter	Need for power
1974	Borland	Internal locus of power
1982	Casson	Risk, innovation, power and authority
1985	Gartner	Change and ambiguity
1987	Begley & Boyd	Risk-taking and tolerating ambiguity
1988	Caird	Drive
1998	Roper	Power of authority
2000	Thomas & Mueller	Risk, power, internal locus of control and innovation
2001	Lee & Tsang	Internal locus of control

Source: Spinelli and Adams (2012: 36)

Based on learning experience, entrepreneurs use their knowledge and acquired skills to identify a business opportunity and to leverage their resources. Katz and Shepherd (2003: 241) contend that the value of resources and skills acquired through the experience of business ownership is in part dependent on the ability of entrepreneurs to learn from their previous experience. Timmons and Spinelli (2009: 315-316) indicates that the main roles of a leading entrepreneur is to construct a management team that combine all the skills that are needed. Raugh and Friese (2007: 355) argue that entrepreneurial characteristics can be used to predict entrepreneurial behaviour.

The following section will provide some information to help identify individuals who have some entrepreneurial traits, and to highlight characteristics of a typical entrepreneur. It will also provide more insight into entrepreneurship and give suggestions on how to establish an entrepreneurial environment within a pipeline gas company.

2.4 ENTREPRENEURIAL ORIENTATION

The term “entrepreneurial orientation” denotes processes of creating strategies, as well as styles of companies that execute entrepreneurial activities. Entrepreneurial orientation is a measure that specifies entrepreneurial activity in a business enterprise. According to Lumpkin and Dess (1996: 138), business processes take shape, from which strategic decisions evolve. These processes form patterns or modes that be characterised and identified across organisations. The dimensions of processes a firm implements to create strategy, may be viewed as spanning the full range of business activities. These involve the following aspects: planning, decision-making and strategic management.

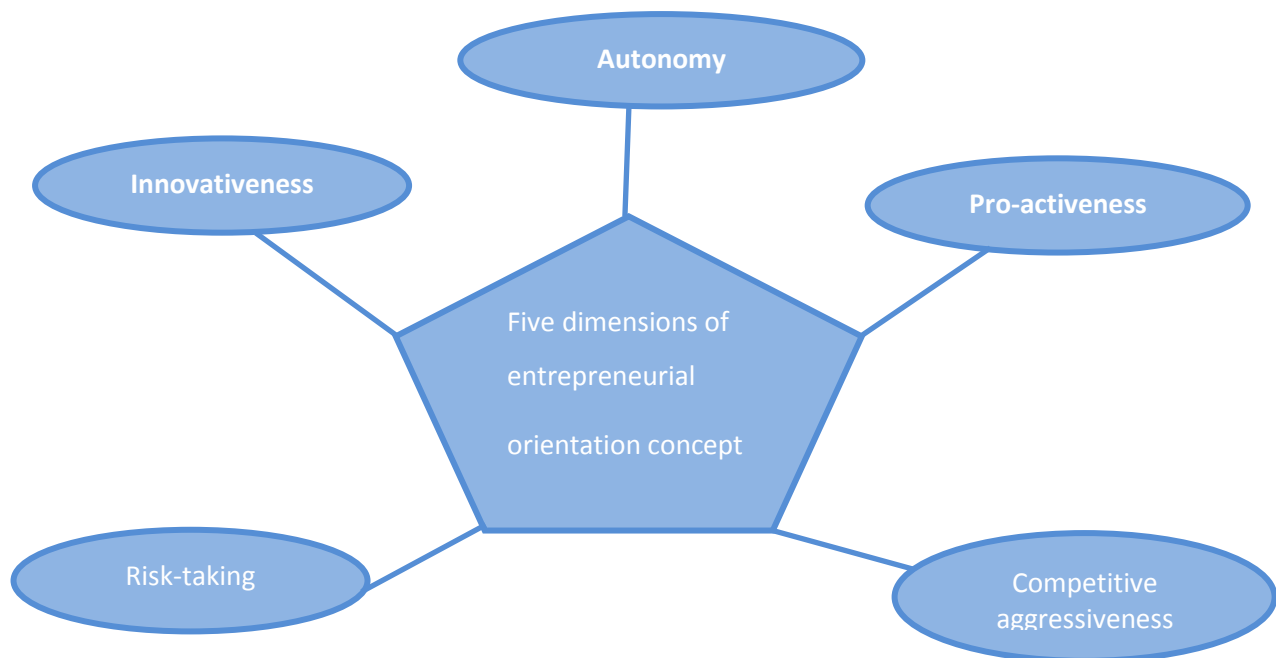
Entrepreneurial orientation is defined as the entrepreneurial strategy-making processes that key decision-makers use to endorse a business’s purpose, sustain its vision and to create a competitive edge (Rauch *et al.*, 2009: 6). In this regard, an entrepreneurial orientation characterises the processes, practices and decision-making activities that

lead to the development and delivery of new innovative products, processes and services (Chang *et al.*, 2007: 999).

Miller (1983: 770) identified the following three dimensions of entrepreneurial orientation: **risk-taking**, **pro-activeness** and **innovativeness**. Miller (2011: 878) points out that literature have different findings on the influence of entrepreneurial orientation on a business performance in general. The three dimensions of entrepreneurial orientation were later supported by the findings of Morris and Kuratko (2002: 39).

Lumpkin and Dess (1996: 136) added two dimensions of entrepreneurial orientation: **competitive aggressiveness** and **autonomy**. These dimensions provide additional components for the entrepreneurial construct.

Figure 2.1: The five dimensions of the entrepreneurial orientation concept



Source: adapted from Enslin (2010: 31)

For the purpose of the study five dimensions of entrepreneurial orientation as independent variables will be used as defined by Dess and Lumpkin (2005: 147).

Kuratko and Audretsch (2009) elaborated on this construct: it also means taking risks by trying out new and uncertain products and services, and by acting more pro-active than competitors in seeking out new marketplace opportunities. This orientation attempts to investigate the extent to which the dimensions of entrepreneurial alignment are associated positively with the performance of the organisation.

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Although authors differ on the number of dimensions that entrepreneurial orientation shows, Lumpkin and Dess (1996) state that, no agreements have been reached about the key aspects of entrepreneurship. Some researchers view these aspects by focusing on entrepreneurial orientation which is emphasised by characteristics such as pro-activeness, risk taking autonomy, competitive aggressiveness and innovativeness—which implies four dimensions. This supports the statement of Schillo (2011: 2) that the most widely used definition of entrepreneurial orientation in the workplace was proposed by Miller (1983), developed further by Covin and Slevin (1989), as well as many others, and augmented by Lumpkin (1996). This conceptualisation has been used in over 200 studies, which not only focused on entrepreneurship, but also on management and marketing.

Govender (2010: 27) mentions that scholars agree that a discipline of entrepreneurial orientation comprises of a number of dimensions as indicated in Table 2.2 below:

Table: 2.2: Dimensions of entrepreneurial orientation

Dimensions	Researchers				
	Morris <i>et al.</i> (2002: 39)	Burns (2004: 12)	Hisrich <i>et al.</i> (2005: 44)	Dess <i>et al.</i> (2005: 147)	Antoncic <i>et al.</i> (2003:19)
Innovation	X	X	X	X	X
Risk-taking	X				X
Pro-active Pattern	X	X	X	X	X
Corporate venturing		X	X	X	X
Organisation Self-renewal			X	X	X
Competitive aggressiveness				X	X
Autonomy					X
New businesses					X

Source: adapted from Antoncic *et al.* (2003: 19)

Table 2.2 presents the views of various researchers in their interpretation of the dimensions of entrepreneurial orientation in matrix format. Antoncic and Hisrich (2001: 499-500) classify entrepreneurial orientation into four dimensions: new business venturing, innovativeness, self-renewal and pro-activeness. But Antoncic *et al.* (2003: 14-19), argues for eight dimensions as indicated by Table 2.2 above. The additional dimensions are: risk-taking, corporate venturing and corporate start-ups.

Entrepreneurial orientation thus entails the methods, decision making activities and practices that lead to the new entry. It involves the intents and actions of key performers who function in a self-motivated procreative process, which is aimed at creating new projects. The typical dimensions that characterise entrepreneurial orientation should also include the following: a propensity to act freely (autonomy), willingness to take risks and to innovate and the tendency to be competitive as well as aggressive and proactive regarding opportunities in the market place (Lumpkin and Dess, 1996: 136).

As indicated in the earlier chapter the present study will focus only on five dimensions namely: **autonomy**, **innovativeness**, **risk-taking**, **pro-activeness** and **competitive aggressiveness**. These dimensions will be discussed and considered as independent variables that influence the dependant variable which is managers' perceived success of the pipeline gas company under investigation.

2.4.1 Risk-taking

Dewett (2004: 258) defines the term "risk" as the extent to which there is ambiguity about whether disappointing and/or potentially significant outcomes of a decision can be realised. Risk was traditionally characterised as either the potential to act too quickly on an uncorroborated opportunity, or the potential to wait too long before taking decisive action (Mullins and Forlani, 2005: 51).

Morris and Kuratko (2002: 50) indicated that from the onset risk-taking has been viewed as a fundamental element of entrepreneurial orientation. The true entrepreneur in the business world is cognisant of the fact that failing to attempt something is a greater failure than trying and not succeeding. Antoncic and Hisrich (2003: 18) contend that risk-taking refers to the quick pursuit of opportunities, fast commitment of resources and courageous actions when in fact, people often don't even realise that they are taking risks. What others may judge as a risky situation, entrepreneurs see as an opportunity for a higher reward. Dess and Lumpkin (2005: 152) stated that risk-taking implies the willingness of an organisation to capture a venture opportunity even though they are uncertain whether the venture will be successful or not, but to act with boldness without

knowing the end result. Risk in the sense of entrepreneurship includes financial, personal and business risks.

Lotz and Van der Merwe (2013: 19) argue that there is another aspect of risk-taking over and beyond the assumption, which is made regularly, that risk-taking and innovativeness are directly correlated. This would mean increasing innovativeness implies taking higher risks. Morris *et al.* (2008: 62), argue by pointing out state that this relationship between risk-taking and innovativeness is much more complex. They (Morris *et al.*, 2008: 63) continue to argue: businesses also face high risks when they search for innovations that provide breakthroughs, which create new entrant markets and redefine industries. Lotz and Van der Merwe (2013: 19), concludes this argument: To be successful in future, companies will need to embark on an entrepreneurial orientation with the ability to sense immediately, act rapidly and mobilise under higher risk conditions.

In this study, an assessment is mad of **risk-taking** as a dimension of entrepreneurial orientation. The researcher will investigate whether study indicates a positive relationship between the propensity for **risk-taking** and the **perceived success** of the participants from the pipeline gas company. This relationship will be assessed by applying a five-point Likert scale.

2.4.2 Competitive aggressiveness

According to Lumpkin and Dess (1996: 148) the term “competitive aggressiveness” refers to a business inclination that intends to challenge to competitors directly and intensely. Lumpkin and Dess (2001: 434) indicate that competitive aggressiveness is characterised by a strong offensive posture, which is directed at overcoming competitors. However, this attitude may also be quite reactive as when a company defends its market share and position to new market entrants. This tendency corresponds with the definition by Lumpkin (2001) and Rauch *et al.* (2007: 7) which typifies competitive aggressiveness as a company’s effort to outperform its rivals and

which is characterised by strong responses and an aggressive counter against competitive threats.

Competitive aggressiveness in brief thus implies a business's determination to outperform its rivals. Businesses with an aggressive orientation are willing to "do battle" with competitors. They might slash prices and sacrifice profitability to gain in their market share, or they may spend aggressively to enhance their manufacturing capacity (Dess and Lumpkin 2005: 151). Govender (2010: 29) points out that some scholars find it hard to distinguish between competitive assertiveness and pro-activeness. He proposes that these should be considered as two distinct dimensions of business level entrepreneurial orientation. Antoncic and Hisrich (2003: 18) draw the differentiation due to the fact that pro-activeness relates to a pioneering attitude to seize market opportunities, whereas competitive aggressiveness is associated with an aggressive organisational relationship to competitors.

In the present study an assessment will be made of **competitive aggressiveness** as entrepreneurial orientation dimension. The researcher will ascertain whether the research findings indicate a positive relationship between the **competitive aggressiveness** and the **perceived success** of participants from the pipeline gas company. This relationship will be assessed by a five-point Likert scale. The items measuring competitive aggressiveness in this study includes the inclination to adopt an extremely competitive posture, viewing the industry as aggressive and intensely competitive; effectively assuming an aggressive posture to combat external threats to survival or progress.

2.4.3 Pro-activeness

According to Madsen (2007: 187), the term "pro-activeness" denotes a posture of anticipating and acting on future wants and needs in the marketplace, thereby creating a first-mover advantage over against competitors. Pro-activeness involves looking for new opportunities, the implementation of ideas, taking responsibility and functionalising concepts (Dafel, 2012: 28). Through pro-activeness entrepreneurs go further; they

clearly define and effectively communicate the advantages of an innovation. Thereafter they ensure that the innovation is implemented and launched (Morris *et al.*, 2008: 66-67).

Pro-activeness thus entails an organisation's efforts to seize new opportunities. Dess and Lumpkin (2005: 150) point out that pro-active organisations monitor trends, identify the future needs of existing customers, and anticipate changes in demand or emerging problems that can lead to new venture opportunities. To align this definition with the study field: it is a forward-looking perspective, which is characteristic of an open market leader who has the anticipation to seize opportunities while expecting future demands. This dimension of pro-activeness is related to pioneering and taking initiative in pursuing new opportunities or to entering the open market place.

Apart from innovativeness, Rauch *et al.* (2009) indicate that pro-activeness is the other integrating dimension of entrepreneurial orientation that offers a more intense positive relationship with business performance and success. It was also found that pro-active companies show greater performance and growth (Moreno, 2010). Lotz and van der Merwe (2013: 20) state that they are in favour of defending a positive relationship between business pro-activeness and the ensuing success.

Kropp *et al.* (2008: 104) mention that activities associated with pro-activeness include the following: identifying and evaluating new opportunities, identifying and monitoring market trends and the formation of new venture teams.

In the present study, the entrepreneurial orientation dimension of pro-activeness will be assessed. This is to determine whether the research findings indicate a positive relationship between the **pro-activeness** and the **perceived success** of the participants of the pipeline gas company. The statements measuring **pro-activeness** will be assessed by a five-point Likert scale.

2.4.4 Autonomy

The term “autonomy” refers to the independent actions of an individual or team in bringing forward an idea or a vision and carrying it through from the initiation to its completion (Lumpkin and Dess, 1996: 140; Lee and Sukoco, 2007: 551). Lassen *et al.* (2006: 361) indicate autonomy as a treasured asset for an organisation to influence its existing strengths and improve its business practices.

Dess and Lumpkin (2005: 149) mentioned that businesses with an overall entrepreneurial mission use a “top-down” approach to stimulate entrepreneurial activities. This means that those organisations need top management support to compete in the market. However, according to Lumpkin, Cogliser and Schneider (2009: 49) the best ideas for new corporate ventures come from the “bottom-up”. Lumpkin *et al.* (2009: 49) stated that the initiation of autonomy from the “bottom-up” requires special incentives and a supportive organisational structure that will support those initiatives throughout. Lumpkin *et al.* (2009: 48) stated that although Lumpkin and Dess in 1996 did propose the inclusion of autonomy as a dimension of entrepreneurial orientation, very few studies have investigated autonomy as an element of such an orientation.

Govender (2010: 30) argues that an entrepreneurial orientation will be ultimately encouraged if an organisation allows its employees to make decisions about their work process and avoid criticising them for making mistakes while applying innovativeness. In addition, environments that allow autonomous decision making help employees to feel valued for their contribution to the organisation and helping to attain the organisation’s goals and objectives.

For the purpose of this study, autonomy will be considered an independent variable and its impact on the dependable variables will be determined. In addition, with **autonomy** as dimension of entrepreneurial orientation, the study indicates a positive relationship between the **autonomy** and the **perceived success** of the participants of the pipeline gas company. The statements measuring **autonomy** will be assessed by a five-point Likert scale.

2.4.5 Innovativeness and creativity

“All innovation begins with creative ideas ... we define innovation as the successful implementation of creative ideas within an organisation. In this view, creativity by individuals and teams is a starting point for innovation; the first is necessary but not sufficient condition for the second” (as cited by Amabile *et al.*, 1996: 1).

The importance of innovation to entrepreneurship was first emphasised by Lumpkin and Dess (1996: 141). They proposed that innovation is the only dimension that has to be employed by all entrepreneurial businesses. This also is true of the case study for this research, the pipeline gas company. Gürbüz and Aykol (2009: 323) stated, that it therefore can be argued that, even in the presence of the other dimensions, if employees do not explore innovation there exists no entrepreneurship on the business level.

Regarding the two terms “innovation” and “creativity” (Macadam and McClelland, 2002: 88) views creativity as thinking “out of the box” and a right-brain activity that sparks ideas. On the other hand, innovation is seen as the complete process starting from both products and services and which is considered to the point where those concepts are incorporated and implemented in the organisation.

McFadzean *et al.* (2005: 353) define innovation further as the process of adding value to the organisation, its providers and consumers. This is done by improving the methods, procedures, results, products and services. Hornsby *et al.* (2002: 257) emphasises that employees must be conscious of the availability of resources for innovative actions. They should also be provided with a relaxed business environment that usually encourages experimentation and risk-taking behaviours.

Oosthuizen (2006: 246) contends that organisations should focus on the creativity of all its employees and their understanding of customer’s needs and competitor’s actions. This will enhance innovation within the whole organisation. Adams and Spinelli (2009: 65) reiterate that at the core of the entrepreneurial process lies the innovative essence.

According to Kuratko and Hodgetts (2004: 120), new ventures often have a collective creativity that flows from the joint efforts of the originators and personnel, and thereby produces distinctive goods and services. Wiklund and Shepherd (2003: 1309) mention that innovative companies can generate an astonishing performance and typically have been described as the engines of economic growth.

For the purpose of this study, **innovativeness** as dimension of entrepreneurial orientation will be assessed. This will be done to ascertain of and whether the research indicates a positive relationship between the **innovativeness** and the **perceived success** of the participants from the pipeline gas company. All the statements measuring **innovativeness** will be assessed by applying a five-point Likert scale.

2.5 PERCEIVED SUCCESS OF THE ORGANISATION

Success in an organisation is difficult to measure. Govender (2010: 47) state that employees in large corporate businesses measure their success based on their own perceptions. Dess *et al.* (1997: 678) posed the following question, “What are performance indicators for businesses functioning in an entrepreneurial strategy making approach?” They go on to provide the answer: “On the one hand it appears to be a strong normative unfairness towards the inherent value in the behaviour of entrepreneurial and categorical depiction of a positive relationship between behaviour and desired business outcomes such as sales growth and profit.”

According to Frese *et al.* (2002: 276), entrepreneurial orientation which refer to the dimensions of innovativeness, autonomy, competitive aggressiveness and risk-taking, were positively related to success of business. Frese *et al.* (2002: 276) focus on business owners who improve on products, processes and services, who are more self-directed, take more risks and who challenge their competitors more. They point out that these managers are more successful than those with a low point of entrepreneurial orientation. Van der Post (1997: 75) argues that financial measures provide a solid base from which to draw conclusions on the success and effectiveness of a business. This is

because all the efforts and systems are finally aimed at ensuring sustainable financial returns. Effectiveness and efficiency are measures of business success and are often related. Are the two measures related and this is shown by business employees who are able to push up the output (Dess *et al.*, 2003: 370).

According to Hayton (2005: 22), employees are considered as a determining factor, even overbearing, in developing an entrepreneurial orientation. Employees who are committed and satisfied also have a positive influence on the entrepreneurial orientation in any business. Kreitner and Kinicki (2008: 4) state that successful businesses value human capital as an asset and thus treat their employees with respect and make them feel important.

For the purpose of this study, perceived business success will be measured by using two variables, namely: business growth and business development and improvement – as will be discussed below.

2.5.1 Business growth

A growing business can be seen with growth in turnover and profit, growth in market share, a competitive position in the business sector, as well as job satisfaction and motivated employees. This impacts on the morale and build the unique brand of the business.

According to Wiese (2009: 44), traditionally financial measures were used. However, these are viewed as short-term measures, which can change between periods and may not be producing long-term corporate success. Deloitte (2008: 10) state that although financial measurements received a high rating in helping the business board to make short-term decisions and in formulating strategy, these data are much less helpful when making medium- and long-term decisions and in to achieve what team consider as an appropriate valuation in the capital markets.

Teo and King (1996: 312) point out that a business's financial performance is measured by market share, turnover and return on investment. Megginson *et al.* (2009: 6), outline the practice of corporate finance in terms of five basic and related functions:

- Raising capital to support the corporation's operations and investment programs.
- Managing the company's exposure to risk, in order to maintain the optimum trade-off in risk returns and therefore maximize the shareholder value.
- Developing a structure for corporate governance that ensures that managers act ethically and in the stockholders' interest.
- Selecting the best projects in which to invest the company's resources, based on each project's perceived risk and expected return.
- Managing the company's internal cash flows and its mix of debt and equity financing to maximize the company's value and ensure its survival (Megginson *et al.*, 2009: 6).

Most of the questions to ask in the assessment, concerns the variable of perceived financial success. This variable indicates whether employees perceive the business to have experienced growth in the following sectors: its market share, in sales and in profits (Govender, 2010: 48).

For the purpose of this study, the dependent variable of perceived success as a construct of business growth will be measured by a five point Likert scale. This will be to determine whether the business over the past few years has experienced growth in: turnover, profit or in market share, and thus whether the business' competitive position has improved over the past few years.

2.5.2 Business development and improvement

The term "business development" refers to highly committed employees who are regarded as the most valuable asset of the business. This includes higher satisfaction among employees, as well as an improved business brand. The focus also is on

efficacy and the business' effectiveness over the previous few years in terms of continued investment in research development (Lotz, 2009: 19). According to Dess *et al.* (2003: 370), the measuring of business success is mostly related to efficiency and effectiveness according to which employees are able to produce a high output.

According to De Nobrega (2012: 31), performance of a business's personnel is determined by the inner organisational environment. Wiklund *et al.*, (2008: 265) elaborated on this by mentioning that members will perform better when they demonstrate a positive emotion, passion for work and have a favourable opinion of their team members in an organisation.

For the purpose of this study, the dependent variable of perceived success, the construct **business development and improvement**, will be measured by a five-point Likert scale. The following indications will be measured in the business concerned:

- whether the business viewed its employees as its most valuable assets; whether employees are highly committed to the business; whether the morale of the employees has improved over the past few years;
- whether the business's position relative to that of the competitors has grown over the past few years;
- whether the efficacy of the business has improved over the past few years; and
- whether innovative projects continue and no significant financial cuts are made.

2.6 SUMMARY

This chapter covered the literature study on entrepreneurship. The central entrepreneurial characteristics are also defined. Various definitions of entrepreneurship are provided and these definitions are personalised by focusing on the unique character.

More specifically this chapter covered the five variables of entrepreneurial orientation and the two variables which measure the perceived success of a business. For the purpose of this study the five variables of entrepreneurial orientation were outlined and defined: **innovativeness**, **pro-activeness**, **risk-taking**, **autonomy** and **competitive aggressiveness**.

The effects of entrepreneurial orientation were measured against the perceived success of an organisation. Variables of perceived success were identified previously as the following: **business growth** and **business development and improvement**.

CHAPTER 3

EMPIRICAL RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter discusses the research approach, method and design with a view to achieving the stated objectives of this research work which were set out in chapter one. A thorough examination of the source of data, the methods used in data collection and data analysis is carried out for the pipeline gas company.

3.2 RESEARCH APPROACH

The study of phenomenology has provided an overarching term for a range of approaches that reject some of the basic premises of positive knowledge. This includes the assumption that collective reality is subjective, that humans react to the knowledge that they are studying, and that it is not possible to gain objective knowledge about collective phenomena (Denscombe, 2002:18). Researchers who are critical of positivism argue that rich understandings into this complex world will be lost if such complexity is reduced entirely to a series of law-like generalisations. The terms most commonly used to differentiate these patterns in terms of their associated methods and techniques are those of quantitative and qualitative respectively (Creswell, 1994:43).

The quantitative approach is objective in nature and concentrates on measuring the occurrence of phenomena. This involves collecting and analysing numerical data and applying statistical tests. The qualitative, phenomenological, approach is more subjective in nature and involves investigating and reflecting on views to gain an understanding of collective and human activities.

By quantitative methods researchers mean the following techniques: randomised tests, quasi-experiments, paper and pencil “objective” tests, multivariate statistical analysis, sample surveys, et cetera. Cook and Reichardt (1979: 9) point out that, in contrast, qualitative methods include ethnography, case studies, in-depth interviews and observation of participants.

- Quantitative research determines the quantity or extent of an outcome in term of numbers and thus provides an exact approach to measurement.
- Qualitative research is subjective in nature and leaves much of the measuring process to the conclusion of the researcher.

The research approach selected for this study was quantitative in nature, since such a research is used to answer questions about relationships among measured dependent and independent variables. The main purpose of such an approach is to explain, predict and control phenomena (Leedy and Omrod, 2005: 95). The data for the present study was collected by means of structured questionnaires, which were analysed by conducting an exploratory factor analysis, demographic analysis, and a t-test. The research approach is considered appropriate to gain information to answer the overall questions and to give direction to the study’s primary objectives.

3.3 RESEARCH METHOD

The following sections will discuss the research method, starting with the measuring instrument, followed by the discussion of research participants, the research procedure and a statistical analysis.

3.3.1 Measuring instrument

Following the findings of Lotz and Van der Merwe (2013: 21) this study investigates the following dimensions of entrepreneurial orientation, namely **autonomy**, **innovativeness**, **risk-taking**, **pro-activeness** and **competitive aggressiveness**,

which is also corroborated in the literature (Morris *et al.*, 2008: 54; Covin and Slevin, 1989: 76; Lumpkin and Dess, 1996: 139-140; Zahra *et al.*, 1999: 50). The present study compiled statements which measure the dimensions. These statements were based on the following measuring instruments: entrepreneurial climate (Oosthuizen, 2006), entrepreneurial orientation statements (Lumpkin and Dess, 2001), the organisational structure and strategic post scale (Covin and Slevin, 1989), as well as the entrepreneurship items (Antoncic and Hisrich, 2001).

Participants were asked to indicate to what extent they agree or disagree with each statement, which is posed by means of a five-point Likert scale, one (1) indicating “strongly disagree” and five (5) indicating “strongly agree” with the statement.

Biographical information was gathered as a measuring instrument to indicate correlations with the opinions expressed in the study. Participants were requested to indicate their age group, gender, race, level of management, qualification and the department in which they worked, according to predefined categories.

3.3.2 Participants

As described by Trochim (2000), a research population is a group of whom the researcher wants to take a broad view, and the sample is seen as the section of people that are selected to be in the study. This definition was supported by Sekaran (2000:295) who views a sample as a subgroup of the population in question and which comprises a selection of members from that particular population. The definition of the sample is of vital importance as the results of a research rely on the quality of the population. The definition of the sample is of vital importance as the results of a research are not more trustworthy than the quality of the population or participants that make up the sample.

The targeted population for this study is the employees at management level of the pipeline gas company. This company is one of the South Africa’s leading transportation and operating enterprises of gas pipelines and other products. Its global operations

consist of several productions in South Africa, and Mozambique, and boasts of a few subsidiaries or joint ventures, legal entities and representatives based in both countries. The target sample is employees at management level who work in South African based production facilities, which are in Komatipoort, Nelspruit, Secunda, Sasolburg, Randburg and Durban. The pipeline gas company under investigation currently has a staff compliment of more than 300 employees of which nine are vacant. The numbers can be broken down as follows:

- Semi-skilled: 68
- Skilled: 163
- Professional: 128

The statistics above highlights the high competence of managers from the specific pipeline gas company in the gas industry.

With regard to established staff the departments are broken down as follows:

Operations	Finance	Regulation	SHE/Q	Legal	Marketing	BE	HR	MD office
231 (65%)	18	12	14	6	31	27	6	2

Source: Unpublished pipeline gas company’s Human Resources.

Random sampling is used by sending the questionnaires to 97 employees. Leedy (1997:205) defines randomisation of the probability sample as selecting a sample from the whole population in such a way that the individualities of each unit of the sample give an estimate of the characteristics of the sample as a whole. Randomisation in this study is achieved by the researcher selecting, employees from the name list at random. The selection is unbiased since managers are not able to select respondents for the study.

3.4 PROCEDURE

3.4.1 Preliminary arrangements

The Managing Director of pipeline gas company gave the researcher permission to use employees of pipeline gas company for the study, see the Appendix B. An e-mail was sent to all employees at management level requesting their support in the completion of the questionnaires.

3.4.2 Ethical aspects

Ethical considerations of confidentiality and privacy were addressed. A concerted and conscious effort was made at all times to uphold this undertaking. A guarantee was given to the respondents that their names will not be revealed in the research report.

The sampling technique used for this study entailed probability sampling. A list of all the employees was received from the Sasol Gas HR department of the company. The objectives and nature of the study were explained, as well as the different constructs in relation to the value it holds for the person and the business. The questionnaires were conducted anonymous. This required of the managers to respond either directly by e-mail or indirectly through fax or by direct hand-to-hand delivery at the researcher's office. All the participants were thanked for their involvement.

3.4.3 Data capturing and feedback

After questionnaires were completed, and handed in they were submitted to North-West university for the Department of Statistics to do a statistical analysis.

3.5 STATISTICAL ANALYSIS

The statistical analysis was carried out with the help of the SPSS and STATISTICA statistical programs (SPSS Inc, 2012; Statsoft, Inc, 2012). Descriptive statistics and

effect sizes were used to decide on the significance of the findings. The results are to be described and compared by way of mean and standard deviations. In the present study, the mean measures the central tendency of the results. The standard deviation presents the average distance of the individual scores from the mean.

Exploratory factor analysis (EFA) is used to examine the constructed equivalence and to enhance the reliability of the findings on both the entrepreneurial orientation and the perceived success of the business. The number of factors in the total sample of the entrepreneurial orientation and the perceived success of the business is determined by the principal component analysis. Subsequently, components extraction is used to estimate the number of factors. This is followed by principal axis factoring extraction, by using a rotation method of direct Oblimin with Kaiser normalisation. This method was applied to calculate the findings on the entrepreneurial orientation and the perceived success of the business. Descriptive statistics (means and standard deviations) are used to analyse the data that was captured. Cronbach's alpha coefficient is used to determine the internal consistency of both dimensions: entrepreneurial orientation and perceived success of the business.

Correlation coefficients are used to specify the relationship between the two variables: Entrepreneurial orientation (independent variable) and perceived success (dependent variable). In terms of statistical significance, the correlation is practically at ($p \leq 0.05$). According to Cohen (1988: 15), effect sizes are used to decide the practical significance of the findings. A cut-off point of 0.3 for medium effect and 0.5 for large effect were set to gauge the practical significance of the correlation coefficients.

A t-test was performed to determine differences between the groups in the sample. As proposed by Cohen (1988: 15) and Steyn (1999: 12), effect size was used in addition to statistical significance. This was to determine the importance of relationships of frequencies and statements from both the variables entrepreneurial orientation and perceived success of the business. The effect sizes served to specify whether the results obtained were practically significant. Furthermore, only the descriptive or

statistical research is relevant to the present study and will be employed in the study, which implies field research, which involves the collection of data.

3.6 SUMMARY

The various aspects of the method used for the empirical study was examined in this chapter. The following were discussed: the selected participants' approval to distribute the questionnaires, measuring instruments, administration and the chosen method of statistical analysis.

CHAPTER 4

EMPIRICAL RESEARCH

4.1 INTRODUCTION

The primary objective of this study is to present, discuss and interpret the results obtained from the empirical study. This study is based on an assessment of the entrepreneurial orientation and perceived business success at a pipeline gas company. The empirical study was conducted by means of a self-completion questionnaire which was distributed to managers within the pipeline gas company. The questionnaires were distributed in an electronic format by means of e-mail. The questionnaire consisted of a section capturing demographics of participants and two sections measuring the five dimension of entrepreneurial orientation and perceived success of a business as constructed by Lotz (2009). An example of the questionnaire is presented in annexure A.

In this study, the five entrepreneurial orientations constructs will be discussed independently and cooperatively by referring to the various means and standard deviations. The two dependent variables of perceived success, namely growth and development, were discussed independently and collectively. This helped the researcher to present the results as a whole, in order to provide a clear understanding of the results and the significance it hold for the business world.

The reliability of the questionnaire and the different variables will be tested by evaluating Cronbach's alpha coefficients. The responses to the survey will be evaluated by investigating the mean value and the standard deviations of all statements and variables.

4.2 GATHERING OF DATA

According to Delport (2002: 165), a clear dissimilarity exists between research design and data collection methods. Research design is the blueprint for the investigation and provides a recommendation for a selection of data collection methods that will be most applicable to the researchers' goal and to the selected design.

4.2.1 Development and construction of questionnaires

The questionnaire used in the study is a standard issue on entrepreneurial orientation compiled by Lotz (2009: 324). The questionnaire was customised for the employees of the pipeline gas company. The questionnaire used in the present study is divided into three sections:

Section A is developed to evaluate the employees' entrepreneurial orientation at the specific pipeline gas company. This section consists of 27 statements. Interval dimensions are used, because the measurement classifies the variables and places them in ranking order, but it also scores the characteristics of the variables on an equally spaced scale. The respondents had to select the extent to which they agree or disagree with each statement. A five-point Likert scale was used, ranging from "strongly disagree" (1) to "strongly agree" (5). The Likert scale is mostly used to measure multidimensional attitudes. According to Welman *et al.* (2011: 157), a scale measuring summated attitudes consists of a collection of statements about the attitudinal objects. In respect of each statement the subjects have to indicate the degree to which they agree or disagree with its content.

Section B is an evaluation of the perceived success of the industry in which participants operate. The characteristics of perceived success refer specifically to growth and development. This section consists of 11 statements related to the perceived success of the pipeline gas company under investigation. A five-point Likert scale was used for this section, as well, ranging from "strongly disagree" (1) to "strongly agree" (5). The participants had to indicate whether they agree or disagree with each statement.

Section C includes the demographical and educational background of the participants. The purpose of this section is to provide data for the statistical analysis and the comparison between various groups. The following answers were required by the respondents indicating with an X:

- Age group
- Gender
- Race classification
- Position level
- Highest academic qualification
- Department or division.

The questionnaire consisting of the three sections discussed above forms the quantitative part of the study. The focus of the questionnaire is to investigate the degree of entrepreneurial orientation and the perceived success of the pipeline gas company in which the participants operate.

4.2.2 Data collection

The study made use of purposive sampling and the sample was derived from the managers who are employed by this pipeline gas company in South Africa. A questionnaire was sent electronically by means of email to all identified participants. The aim was to send or distribute the questionnaires to as many participants as possible.

The collected data was analysed statistically by using SPSS and the Statistica programme. The data from the questionnaires was coded and transformed into descriptive statistics that include frequency tables. The frequency tables were used to draw a conclusion and make recommendations on the entrepreneurial orientation at such a pipeline gas company.

4.3 RESPONSES

A total of 97 questionnaires were distributed and 85 were completed by participants and collected. This constitutes a response rate of 87.63%.

4.4 BIOGRAPHICAL

Section C captured the demographic information of participants on the following aspects: age group, gender, race classification, job level and the highest academic qualification obtained and their department.

4.4.1 Age group of participants

Purpose of the question

The purpose of question C1 in section C of the questionnaire (refer to Appendix A) was to establish the age group categories of the participants to establish the average age groups and the age group profile of the organization.

Results obtained

The age group of all managers that participated is presented in Table 4.1 below.

Table 4.1: Age group classification of participants

Age	Frequency	Percentage	Cumulative percentage
≤29	10	11.76	11.76
30-39	41	48.24	60.00
40-49	21	24.71	84.71
50-59	11	12.94	97.65
60+	2	2.35	100.0
Total	85	100	

Analysis of results

The largest number of participants was between ages 30 and 49 at 72.95%. The category 50-59 years represented 12.94% of the participants. Only 11.76% were younger than 29 years, followed by 2.35% participants above 60 years of age.

4.4.2 Gender classification of participants

Purpose of the question

The purpose of question C2 in section C of the questionnaire (refer to appendix A) was:

- Determine the gender of participants.
- Compare the differences between the demographic variable gender and the entrepreneurial orientation variables.
- Compare the differences between the demographic variable “gender” and the perceived success of the organisation.

Results obtained

The gender group of all managers who participated is presented in Table 4.2 below.

Table 4.2: Gender classification of participants

Gender	Frequency	Percentage
Female	19	22.35
Male	66	77.65
Total	85	100.00

Analysis of results

The majority of participants are male (77.65%), followed by 22.35% females.

4.4.3 Race classification of participants

Purpose of the question

Question C3 of section C of the questionnaire (refer to Appendix A) was to determine the race of the participants according to the South African group classification namely, Black, white, Coloured or Indian. Thereby the researcher could establish the demographics of the organisation.

Table 4.3: Race of participants

Race	Frequency	Percentage
Black	48	56.47
Coloured	5	5.88
Indian	8	9.41
White	24	28.24
Total	85	100.00

Analysis of results

The majority of the participants (56.47%) were from the Black race group. Only 28.24% participants were from the White race group. The race group that had the lowest representation was the Indian and Coloured group with 9.41% and 5.88% respectively.

4.4.4 Academic qualification obtained by participants

Purpose of the question

The purpose of question C4 in section C of the questionnaire (refer to Appendix A) was to determine the highest qualification of the participants for the make-up of the management staff.

Results obtained

The academic qualification of participants is presented in Table 4.4

Table 4.4: Academic qualification of participants

Qualification	Frequency	Percentage	Cumulative percentage
Grade 12	6	7.06	7.06
National Certificate	6	7.06	14.12
National Diploma	12	14.12	28.24
Three year Degree	29	34.12	62.35
Post graduate	31	36.47	98.82
Missing	1	1.18	100.00
Total	85	100.00	

Analysis of results

The results indicated that 36.47% of the participants had a post graduate degree, whilst 34.12% are only graduates. Participants with diplomas are only 14.12%, whilst 7.06% of the participants each have a National certificate and a grade 12 qualification.

4.4.5 Post levels of participants

Participants were requested to indicate their post levels. The post levels indicate the following managerial positions:

- level 8 – lower managers
- level 6C-7 – middle managers,
- level 5B-4 – senior managers
- level 3+ – executive managers.

Purpose of the question

The purpose of question C5 in section C of the questionnaire (refer to Appendix A) was to determine the capacity in which the participant is employed in their position within the pipeline gas company. This data is used to:

- Compare the differences in means between the position or level of employment and the entrepreneurial orientation variables.
- Compare the differences between the position or level of employment and the perceived success of the pipeline gas company's variables.

Results obtained

The position of participants is represented in Table 4.5 below.

Table 4.5: Position of participants

Position (level)	Frequency	Percentage
Level 3+	4	4.71
Level 5B-4	40	47.06
Level 6C-7	38	44.71
Level 8	3	3.53
Total	85	100.00

Analysis of the results

The results indicated the highest participants at 47.06% as managers at level 5B-4; managers at level 6C-7 indicates 44.71%, whilst lower level managers at level 8 make up 3.53%, followed by executive level 3+ indicating 4.71%.

4.4.6 Departments where the participants are working

This study focused on 10 departments at a specific pipeline gas company. Table 4.6 below represents the number of participants in terms of departments.

Table 4.6: Department of participants

Department	Frequency	Percentage
Engineering Planning and Technology	15	17.65
Facility	6	7.06
Finance	7	8.24
Human Resource	3	3.53
Information Management	2	2.35
Legal	5	5.88
Maintenance	11	12.94
Marketing	8	9.41
Production	21	24.71
Supply Chain	4	4.71
Missing	3	3.53
Total	85	100

4.5 THE RELIABILITY OF THE QUESTIONNAIRE

Reliability is an important criterion for the validation of the outcomes. The Cronbach's alpha coefficients were determined, firstly to assess the internal consistency between the items of the measuring instrument, and secondly, to assess the internal consistency of the items measuring the various variables under investigation (Brymann and Bell, 2007: 164).

The value of the outcomes can vary between zero (0), for no reliability and one (1), for maximum reliability (Kent, 2007: 142). A larger value means a higher internal consistency and more reliable outcome (Struwig and Stead, 2004: 133). Table 4.7 summarises the Cronbach alpha's value interpretations, which will be used as a guideline to assess the outcomes of the survey. Higher values of alpha are most desirable and as a rule of thumb, a reliability of greater or equal to 0.7 is required.

Table 4.7: Cronbach's alpha coefficient and internal consistency

Cronbach's alpha	Internal consistency
$\alpha \geq 0.9$	Excellent
$0.8 \leq \alpha < 0.9$	Good
$0.7 \leq \alpha < 0.8$	Acceptable
$0.6 \leq \alpha < 0.7$	Questionable
$0.5 \leq \alpha < 0.6$	Poor
$\alpha < 0.5$	Unacceptable

Source: Cortina (1993: 98)

The responses of all 85 participants were used to determine the reliability of the statements. The results are indicated by Table 4.8 below.

Table 4.8: Cronbach's alpha coefficients for the questionnaire

Variable	Cronbach's alpha
Autonomy	0.796
Innovativeness	0.762
Risk-taking	0.625
Pro-activeness	0.898
Competitive aggressiveness	0.846
Business growth	0.709
Business development and improvement	0.861

Analysis of results

The reliability of six of the factor was well above 0.7 indicating strong reliability but the risk-taking variable gave a factor reliability of 0.625 which is also good, an alpha value below 0.7 is also deemed acceptable in social science (Field, 2009: 675).

4.6 AN ASSESSMENT OF THE ENTREPRENEURIAL ORIENTATION

The purpose of statement A1-A27 in Section A of the questionnaire (refer to Appendix A) was to determine the entrepreneurial orientation of the participants who are working as managers at the pipeline gas company. The questions were divided into five themes according to the constructs which it was to measure. These constructs entail: **autonomy**, **innovativeness**, **risk-taking** and the additional two, **pro-activeness** and **competitive aggressiveness**. The results are used to determine the influence of these factors on the perceived success of the pipeline gas company. The average or mean and standard deviation of each of the 27 items which measure the entrepreneurial orientation are indicated in Tables 4.10 to 4.14.

Table 4.9 is divided into five constructs, which are discussed All the questions under each construct are listed and a mean and standard deviation provided for each

construct. All the constructs are arranged from highest ranked average (mean) to the lowest.

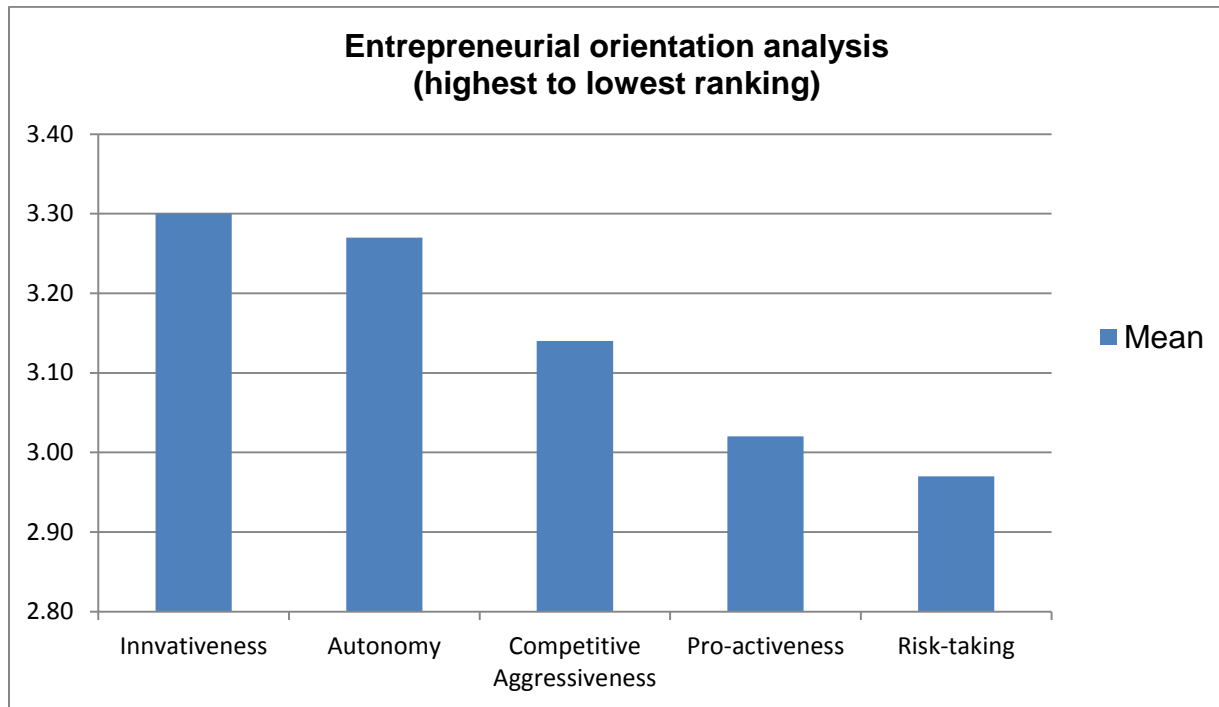
Table 4.9: Results of the entrepreneurial orientation survey

Variables	mean	Standard deviation
Innovativeness	3.30	1.05
Autonomy	3.27	0.94
Competitive aggressiveness	3.14	1.11
Pro-activeness	3.02	1.12
Risk-taking	2.97	1.02
Average	3.14	1.05

A mean value of 3 on the five-point Likert scale indicates a neutral opinion. The average mean of four for the independent variables of entrepreneurial orientation was (mean) 3.14. This indicates that there is an overall positive perception towards entrepreneurial orientation, but with room for improvement. **Risk-taking** scored low with a mean of 2.97. This indicates that there is a lower positive perception towards entrepreneurial orientation, particularly regarding risk-taking among managers at the pipeline gas company concerned.

The results of the survey are presented graphically in a column chart that compares the different variables. The figure 4.1 below presents the results which are sorted from highest ranking to lower with respect to the mean value.

Figure 4.1: Entrepreneurial orientation analysis



4.6.1 Autonomy

Purpose of the question

The purpose of statement A1-A5 in Section A of the questionnaire (refer to Appendix A) was to determine the level of **autonomy** that managers experience in a pipeline gas company. Each participant had to rate the successive statements at 1 to 5, with 1 for “strongly disagree” and 5 for “strongly agree”. Results obtained in table 4.10 indicates the results by showing the mean and standard deviation for each item measuring the variable, ranking the mean from the highest to lowest.

Results obtained

Table 4.10: Autonomy of participants

	Statement	Mean	Standard deviation
A1	I have enough autonomy in my job without continual supervision to do my work.	4.13	0.78
A2	Our business allows me to be creative and try different methods to do my job.	3.43	1.09
A4	Employees in our business are encouraged to manage their own work and have flexibility to resolve problems.	3.35	1.00
A3	Employees in our business are allowed to make decisions without going through elaborate justifications and approval procedures	3.13	1.02
A5	I seldom have to follow the same work methods or steps while performing my major tasks from day to day.	2.29	0.83
	Average	3.27	0.94

Analysis of results

The average mean of the variable **autonomy** is equal to 3.27 with a standard deviation of 0.94, which indicates that on average the participants believe they have some *level of autonomy in their work place*. Statement A1 (mean= 4.13) reported the highest average score for this variable and, A2 and A4 are also above average with a mean of 3.43 and 3.35 respectively. In contrast, statement A3 (mean= 2.29) has reported a slight disagreement and there might be a feeling that *the employees have to go through approval procedures to get their work done*.

4.6.2 Innovativeness

Purpose of the question

The purpose of statement A6-A14 in Section A of the questionnaire (refer to Appendix A) was to determine the level of **innovations** that managers experience in a pipeline gas company. Each participant had to rate the successive statements from 1 to 5, with 1 for “strongly disagree” and 5 for “strongly agree”. Results obtained in table 4.11

indicates the results by showing the mean and standard deviation for each item measuring the variable, ranking the mean from highest to lowest.

Results obtained

Table 4.11: Results of innovativeness

	Statement	Mean	Standard deviation
A12	Our business places a strong emphasis on continuous improvement in products/services delivery process.	3.96	0.96
A9	Our business is continually pursuing new opportunities.	3.79	0.92
A13	Our business has a widely held belief that innovation is an absolute necessity for the business's future.	3.61	0.99
A7	Our business places a strong emphasis on new and innovative products/service/processes.	3.27	1.08
A6	Our business regularly introduces new services/products/processes.	3.14	1.06
A14	Our leaders seek to maximize value from opportunities without constraints to existing models, structures or resources.	3.12	1.10
A10	Over the past few years, changes in our processes, services and product lines have been quite dramatic.	2.96	1.08
A11	In our business there is a strong relationship between the number of new ideas generated and the number of new ideas successfully implemented.	2.95	1.05
A8	Our business has increased the number of services/products offered during the past two years.	2.87	1.21
Average		3.30	1.05

Analysis of results

The average mean of the variable **innovativeness** is equal to 3.30 with a standard deviation of 1.05, which indicates that on average the participants believe they have some *level of innovativeness in their work place*. There is a *relatively strong feeling that the business places a strong emphasis on continuous improvement of their products,*

service delivery and processes. Statement A12 (mean= 3.96 and standard deviation= 0.96) reported the highest average score for this variable. On average the participants agreed statements A9 (mean= 3.79), A13 (mean= 3.61), A7 (mean= 3.27), A6 (mean= 3.14) and A14 (mean= 3.12). The participants seem to disagree whether in their *business there were quite dramatic changes in processes, services and product lines* A10 (mean= 2.96), as well as a *strong relationship between the number of new ideas generated and successfully implemented*: A11(2.95); and that their *business has an increased number of services/products offered*:A8 (mean= 2.87) which scored the lowest.

4.6.3 Risk-taking

Purpose of the question

The purpose of statements A15-A19 in Section A of the questionnaire (refer to Appendix A) was to determine the level of **risk-taking** that managers experience in a pipeline gas company. Each participant had to rate the successive statements from 1 to 5, with 1 for “strongly disagree” and 5 for “strongly agree”. Results obtained table 4.12 indicates the results by showing the mean and standard deviation for each variable, ranking the mean from highest to lowest.

Results obtained

Table 4.12: Results of Risk-taking

	Statement	Mean	Standard deviation
A17	Owning the environment, our business believes that bold, wide-ranging acts are necessary to achieve the business objectives.	3.39	0.87
A18	Employees are often encouraged to take calculated risks concerning new ideas.	3.02	1.24
A15	When confronted with uncertain decisions, our business typically adopts a bold posture in order to maximise the probability of exploiting opportunities.	3.01	0.94
A16	In general, our business has a strong inclination	2.96	1.00

	towards high-risk projects.		
A19	The term “risk-taker” is considered a positive attribute for employees in our business.	2.46	1.06
Average		2.97	1.02

Analysis of results

The average mean of the variable **risk-taking** was found equal to 2.97 with a standard deviation of 1.02. The highest agreement was with statement A17 (mean= 3.39 and standard deviation= 0.87). Therefore it seems that *the participants believe that bold and wide-ranging acts are necessary to achieve the business’s objectives*. The participants also agreed with statement A18 (mean= 3.02) and A15 (mean= 3.01). In contrast to the previous statements the participants seem to disagree with statement A16 (mean= 2.96) by *not considering the term “risk-taker” as positive attribute for employees in the business* A19 (mean= 2.46).

4.6.4 Pro-activeness

Purpose of the question

The purpose of statements A20-A23 in Section A of the questionnaire (refer to Appendix A) was to determine the level of **pro-activeness** that managers experience in a pipeline gas company. Each participant had to rate the successive statements from 1 to 5, with 1 for “strongly disagree” and 5 for “strongly agree”. Table 4.13 indicates the results by showing the mean and the standard deviation for each variable, ranking the mean from highest to lowest.

Results obtained

Table 4.13: Results of pro-activeness

	Statement	Mean	Standard deviation
A23	Our business continuously monitors market trends	3.46	1.02

	and identifies future needs of customers.		
A22	Our business continuously seeks out new products/processes/services.	3.01	1.24
A20	Our business is very often the first to introduce new products/processes.	2.86	1.21
A21	Our business typically initiates actions which competitors respond to.	2.75	1.01
Average		3.02	1.12

Analysis of results

The average mean of the variable **pro-activeness** is equal to 3.02 with a standard deviation of 1.12. This means that there is an agreement with the variable measured, where the mean value of the statements, varies from participants agreeing with the statement A23 (mean= 3.46), by indicating that *the business continuously monitors market trends and identifies future needs of customers*, to a slight disagreement with statement A21 (mean= 2.75), as well as statement A20 (mean= 2.86). It therefore seems that the participants are uncertain whether *the business typically initiates actions which competitors respond to it*. The results indicate a slightly positive agreement with statement A22 (mean= 3.01).

4.6.5 Competitive aggressiveness

Purpose of the question

The purpose of statements A24-A27 in Section A of the questionnaire (refer to Appendix A) was to determine the level of **competitive aggressiveness** that managers experience in a pipeline gas company. Each participant had to rate the successive statements from 1 to 5, with 1 for “strongly disagree” and 5 for “strongly agree”.

Table 4.14 indicates the results by showing the mean and the standard deviation for each variable, ranking the mean from highest to lowest.

Table 4.14: Results of competitive aggressiveness

	Statement	Mean	Standard deviation
A27	Our business knows when it is in danger of acting overly aggressive (this could lead to erosion of our business’s reputation or to retaliation by our competitors).	3.43	1.14
A26	Our business effectively assumes and aggressive posture to combat trends that may threaten our survival or competitive position.	3.13	1.21
A25	Our business is very aggressive and intensely competitive.	3.01	1.16
A24	In dealing with competitors our business typically adopts a very competitive “undo-the-competitor” posture.	2.99	0.92
Average		3.14	1.11

Analysis of results

The average mean of the variable **competitive aggressiveness** is equal to 3.14 with a standard deviation of 1.11. This implies that on average participants agree that *the business is competitively aggressive*, with statement A27 (mean= 3.43) which scores the highest where participants agree that their *business knows when it is danger of acting overly aggressive*. This is followed by statements A26 (mean= 3.13) and A25 (mean= 3.01) where the participants also disagreed slightly with statement A24, in dealing with competitors, that their *business typically adopts a very competitive “undo-the-competitor” posture* (mean=2.99).

4.7 ASSESSMENT OF PERCEIVED SUCCESS OF THE BUSINESS

The results of Section B of the questionnaire (refer to Appendix A) evaluated the perceived perception of managers in the pipeline gas company regarding two dependable variables: **business growth** and **business development and improvement** that measure perceived success. Participants were asked to answer the

11 statements. They were also requested to indicate their level of agreement or disagreement on a five-point Likert scale. Each participant had to rate the successive statements in terms of 1 to 5, with 1 for “strongly disagree” and 5 for “strongly agree”.

4.7.1 Business growth

Purpose of the question

The purpose of statements B1-B4 in Section B of the questionnaire (refer to Appendix A) was to determine the perceived success of the business, with special reference to **business growth as a measure of success**, which managers in a pipeline gas company perceived. Each participant had to rate the statements from 1 to 5, with 1 for “strongly disagree” and 5 for “strongly agree”. Table 4.15 indicates the results by showing the mean and the standard deviation for item measuring the variable, ranking the mean from highest to lowest.

Table 4.15: The result regarding business growth

	Statement	Mean	Standard deviation
B2	Our business has experienced growth in turnover the past few years.	4.62	0.51
B1	Our business has experienced growth in profit over the past few years.	4.60	0.54
B3	Our business has experienced growth in market share over the past few years.	4.11	0.91
B4	The competitive position of our business has improved over the past few years.	3.69	0.88
Average		4.25	0.71

Analysis of results

Participants agreed with all the statements that measure the variable of **business growth**. The participants agreed that the business had experienced a growth in turnover over recently with B2, *experience growth in turnover over the past few years*

having the highest mean value (mean=4.62) and B1, *experienced growth in profit over the past few years* scoring the second highest with a mean value of 4.60. The other two statements were below average but in agreement with the top two statements. These entail B3, *experience growth in the market share* (mean= 4.11) followed by the last statement B4, *the business has improved competitive position over the past few years* (mean= 3.69).

The average mean for the construct of **business growth** is equal to 4.25 with a standard deviation of 0.71.

4.7.2 Business development and improvement

Purpose of the question

The purpose of statements B5-B11 in Section B of the questionnaire (refer to Appendix A) was to determine the perceived success of the business, particularly referring to **business development and improvement as a measure of success**, which managers perceived in a pipeline gas company. Each participant had to rate the statements from 1 to 5, with 1 for “strongly disagree” and 5 for “strongly agree”. Table 4.16 indicates the results by showing the mean and standard deviation for item measuring the variable, and ranking the mean from highest to lowest.

Table 4.16: Results of business development and improvement

	Statement	Mean	Standard deviation
B8	Our employees are highly committed to our business.	3.63	0.71
B10	The image (stature) of our business, relative to our competitors, has grown over the past few years.	3.58	0.83
B5	The effectiveness (doing the right things) of our business has improved over the past few years.	3.57	0.95
B9	The moral (job satisfaction) of our employees has improved over the past few years.	3.50	0.82
B6	The efficiency (doing things right) of our business has	3.27	1.14

	improved over the past few years.		
B7	In our business, employees are viewed as the most valuable asset of the business.	3.00	1.10
B11	During difficult economic periods, investments in research and development/innovative projects continue and no significant financial cuts are made.	2.92	1.09
Average		3.35	0.95

Analysis of results

The average mean of **business development and improvement** is equal to 3.35 with a standard deviation of 0.95. In relation to this specific variable the strongest agreement was with statement B8 (mean 3.63) that *the employees are highly committed to the business*. Sorted from the largest to smallest mean value (strongest agreement to weakest or slightly disagreement), the statements ranked in the following order: B10 (mean= 3.58), B5 (mean= 3.57), B9 (mean= 3.50), B6 (mean= 3.27) and lastly, B7 (mean= 3.00). There was one slightly disagreement B11 (mean= 2.92), which indicates that there may be not *significant financial cuts during difficult economic periods*.

4.8 FACTOR ANALYSIS

In order to conduct the exploratory factor analysis, the data was divided into two models: independent variable and dependent variable. In identifying the factors to extract for each model, the percentage of variance were explained and the individual factor loadings were considered.

4.8.1 Independent variables

The proposed theoretical dimensions of entrepreneurial orientation had to be confirmed to meet the research objectives. The matrix pattern is used for a factor analysis of the entrepreneurial orientation of the participants.

KMO test as well as Bartlett's test of sphericity was conducted to evaluate sampling adequacy. The KMO accepts results between zero (0) and one (1), with the small values implying that overall the variables have too little in common to warrant factor analysis. Results above 0.7 are considered to be acceptable.

The KMO results for the dimensions of entrepreneurial orientation were 0.726. Therefore the Bartlett's test of sphericity was significant for this analysis. A number of factor solutions were investigated. In this investigation guidelines were considered, such as the Kaizer criterion (Eigen values larger than unity), the screed plot, and the amount of difference explained by factors, as well as the clarity and size of the factor loadings. The most important requirement is that the factors should make sense. An analysis was conducted of the principle-axis factors with direct Oblimin rotation. The factors were labelled as follows:

Factor one (1): Competitive aggressiveness

Factor two (2): Pro-activeness

Factor three (3): Innovativeness

Factor four (4): Autonomy

Factor five (5): Risk-taking

The results for the participants measuring entrepreneurial orientation as an independent variable are presented in Table 4.17 below.

Table 4.17: Oblimin rotated factor matrix: entrepreneurial orientation

Statement	Factors				
	Factor 1:Competitive aggressiveness	Factor 2:Pro-activeness	Factor 3:Innovativeness	Factor 4:Autonomy	Factor 5:Risk-taking
A26 (Compet)	.792				
A18(Risk)	.731				
A17(Risk)	.699				
A2(Auto)	.570				
A27 (Compet)	.531	.327	-.352		
A19 (Risk)	.513				
A15 (Risk)	.381		.378		.369
A1(Auto)	.360				
A23 (Pro-A)		.871			
A22 (Pro-A)		.754			
A21 (Pro-A)		.753			
A10 (Innov)		.691			
A20 (Pro-A)		.668			
A25 (Compet)	.343	.514			
A8(Innov)		.479			
A24 (Compet)		.456			.318
A6(Innov)			.643		
A13 (Innov)	.322		.579	.373	
A7(Innov)	.381		.578		
A12 (Innov)				.823	
A4(Auto)				.622	
A9 (Innov)			.417	.512	
A14 (Innov)	.463			.468	
A3(Auto)				.421	
A11(Innov)		.304		.382	
A5(Auto)					.843
A16 (Risk)					.517

Analysis of results

The criterion for factor extraction is that the Eigen-values must be higher than one (Davies, 2005: 446). Applying this criterion, five factors were extracted in the empirical factor analysis with which 66.04% of the variance before rotation is explained. After

rotation, these factors can be identified as the entrepreneurial orientation's theoretical dimensions of **competitive aggressiveness**, **pro-activeness**, **innovativeness**, **autonomy** and **risk-taking**.

Factor one, labelled **competitive aggressiveness**, consisted of eight statements. Two statements (A26; A27), that were used to measure the latent variable **competitive aggressiveness**, loaded onto factor one. Four statements (A18, A17, A19, A15) relating to the latent variable **risk-taking**, were also included. Two statements (A2, A1), that were used to measure the latent variable **autonomy**, were also included in factor one. Participants regarded these statements as related to the factor **competitive aggressiveness**. In this regard, **competitive aggressiveness** refers to the orientation when an aggressive posture is assumed not only against competitors, but also against any industry trends that may compromise survival or the company's competitive position.

The second factor, labelled **pro-activeness**, consisted of eight statements. Four of these statements (A23, A22, A21, A20), that were used to measure the latent variable **pro-activeness**, loaded onto factor two as expected. Two statements (A10, A8), relating to the latent variable **innovativeness**, were also included. Two statements (A25, A24), used to measure the latent variable **competitive aggressiveness**, were also included in factor two. Participants regarded these statements as related to the factor **pro-activeness**. In this regard, **pro-activeness** refers to the following aspects of an entrepreneurial orientation: continuous monitoring of market trends and future needs of customers; opportunities created by these trends and needs that are pursued; the continually improvement of existing products or services; the on-going provision of new product or services.

The third factor, labelled **innovativeness**, consisted of three statements. These three statements, (A6, A13, A7), that were used to measure the latent variable **innovativeness** loaded onto factor three as expected. Participants understood these statements as relating to the factor **innovativeness**. For the purpose of this study,

innovativeness can be described as follows: the regular introduction of new products, services or processes; an increased number of services or product offerings during the past two years; the extent to which these new services, products or processes have grown within the past few years.

Factor four, labelled **autonomy**, consisted of six statements. Two statements (A4, A3) that were used to measure the latent variable **autonomy**, loaded onto factor four as expected. Participants did indeed regard these statements as related to the factor **autonomy**. Four statements (A12, A9, A14, A11) relating to the latent variable **innovativeness**, were also included. For the purpose of this study, **autonomy** is seen to refer to the following: employees, managers in particular, who are encouraged to manage their own work without continuous supervision and who are allowed to be creative and attempt different methods to perform their tasks efficiently.

Factor five, labelled **risk-taking**, consisted of two statements. One statement (A16) that was used to measure the latent variable **risk-taking**, loaded onto factor five. The other statement (A5), relating to the latent variable **autonomy**, was also included. Participants did indeed understand these statements as related to the factor **risk-taking**. For the purpose of this study, **risk-taking** refers to a positive attribute among employees, particularly managers; as a consequence, employees are encouraged to take calculated risks with new ideas without going through elaborate procedures to justify their orientation or to get approval for these ideas.

4.8.2 Dependent variable

With regard to the second model concerning the dependent variable, an Oblimin oblique rotation was performed on the principal components of an exploratory factor analysis, since there was theoretical justification to believe that the factors measuring perceived success would correlate (Field, 2009: 643).

The Kaiser-Maier-Olkin (KMO) test as well as Bartlett's test of sphericity was also conducted in order to evaluate the adequacy of the sampling. KMO accepts results

between zero (0) and one (1), with small values meaning that overall the variables have too little in common to warrant a factor analysis. Results above 0.7 are considered to be acceptable.

The KMO results for the perceived success were 0.750. Therefore the Bartlett's test of sphericity was significant for this analysis. A number of factor solutions were investigated by considering guidelines such as the Kaizer criterion (Eigen values larger than unity), the scree plot, and the amount of difference explained by factors, as well as the clarity and size of the factor loadings. An analysis of principle axis factors was conducted with a direct Oblimin rotation. The factors were named as follows: **business development and improvement** and **business growth**. The results for the participants' perceived success within a pipeline gas company as a dependent variable are presented in Table 4.18 below.

Table 4.18: Oblimin rotated factor matrix: Perceived success

		Factor	
		Factor 1: Business development and improvement	Factor 2: Business growth
B7	(Business develop)	.926	
B6	(Business develop)	.783	
B9	(Business develop)	.728	
B10	(Business develop)	.661	
B5	(Business develop)	.600	
B4	(Business growth)	.590	
B11	(Business develop)	.586	
B8	(Business develop)	.436	
B2	(Business growth)		.935
B1	(Business growth)		.900
B3	(Business growth)	.329	.381

Analysis of results

The researcher applied the factor extraction criterion according to which the Eigen-values must be higher than one (Davies, 2005: 446). Thus two factors were extracted in

the empirical factor analysis by which to explain 58.43% of the variance before rotation. After rotation, these factors could be identified as the perceived success of business in terms of the theoretical variables **business development and improvement** and **business growth**. Table 4.18 above indicates that the statements expected to measure **perceived success** divided into two separate factors: **business development and improvement** and **business growth**.

Factor one, labelled **business development and improvement**, consisted of eight statements. Seven statements (B7, B6, B9, B10, B5, B11, B8) that were used to measure the dependent variable **business development and improvement** loaded onto factor one as expected. Participants understood these statements as related to the factor **business development and improvement**. One statement (B4) relating to the dependent variable **business growth**, was also included.

For the purpose of this study, **business development and improvement** refers to the following aspects: highly committed employees who are viewed as the most valuable asset of the business and improved job satisfaction, image of the business, efficiency and effectiveness over the past few years with continued investments in research and development or innovative projects, even during difficult economic periods.

The second factor, labelled **business growth**, consisted of three statements. All three statements (B2, B1, B3) that were used to measure the dependent variable **business growth**, loaded onto factor two as expected. Participants regarded these statements as related to the factor **business growth**.

For the purpose of this study, **business growth** refers to the following variables: growth in profits, turnover, market share and the competitive position of the business over the past few years.

4.9 DEPENDENT VARIABLE – INDEPENDENT VARIABLE CORRELATIONS

The results of the correlation coefficient between the dependent and independent variables between the constructs are shown in Table 4.19.

As indicated in the table 4.19, **business growth, business development and improvement** as well as dimensions of entrepreneurial orientation were distributed normally.

Table 4.19: Correlation coefficients between perceived success and dimensions of entrepreneurial orientation

	Competitive aggressiveness	Pro-activeness	Innovativeness	Autonomy	Risk-taking	Business development and improvement	Business growth
Competitive aggressiveness	1.000	.609**	.596**	.601**	.161	.751**	.177
Pro-activeness	.609**	1.000	.578**	.627**	.231*	.525**	-.049
Innovativeness	.596**	.578**	1.000	.618**	.250*	.631**	.129
Autonomy	.601**	.627**	.618**	1.000	.129	.538**	.039
Risk-taking	.161	.231*	.250*	.129	1.000	.155	.142
Business development and improvement	.751**	.525**	.631**	.538**	.155	1.000	.232*
Business growth	.177	-.049	.129	.039	.142	.232*	1.000

** . Correlation is significant at the 0.01 level (2-tailed). * . Correlation is significant at the 0.05 level (2-tailed).

As seen in Table 4.19, there is a strong statistically and practically significant correlation between **competitive aggressiveness** and **pro-activeness, innovativeness** and **autonomy** as dimensions of entrepreneurial orientation, seeing that the correlation values are greater than 0.300. There is positive but weak correlation between **risk-taking** and **competitive aggressiveness, pro-activeness, innovativeness** and **autonomy**, seeing that the correlation values are less than 0.3 but greater than zero (0).

There is a strong statistically and practically significant correlation between **business development and improvement** as dependent variable, and **competitive aggressiveness, pro-activeness, innovativeness** and **autonomy** as dimensions of entrepreneurial orientation and also independent variables, seeing that the correlation values are greater than 0.300. A weaker correlation can be pointed out between **business development and improvement** and **risk-taking**, seeing that the correlation values are less than 0.3 but greater than zero (0). The variable **business growth** shows no correlation with the dimensions of entrepreneurial orientation: **competitive aggressiveness, pro-activeness, innovativeness, autonomy** and **risk-taking**.

4.10 T-TEST

An independent t-test was used to test for p-values of statistical significance and the d-values or the effect size between the opinion of the selected frequency variables and the different variables measuring perceived success of a business, and measuring entrepreneurial orientation. For the purpose of this study, a conservative approach was used where the t-test does not assume equal variances (Elliot and Woodward, 2007: 59).

For this research, the following were measured: the relationship between age group and gender, five independent variables of entrepreneurial orientation and the two dependent variables of perceived success among managers of a pipeline gas company enterprise.

4.10.1 Gender

A t-test was conducted to ascertain whether males and females responded differently to the sections. The p-value and d-values (effect sizes) of the t-test are indicated in Table 14.20 below. The questionnaire was completed by 65 males and 19 females.

Table 4.20: Results of the t-test for gender

		N	Mean	Std. Deviation	p value	Effect Size
Competitive aggressiveness	Male	65	3.343	0.615	0.12	0.39
	Female	19	2.947	1.001		
Pro-activeness	Male	65	3.112	0.764	0.02	0.52
	Female	19	2.586	1.004		
Innovativeness	Male	65	3.397	0.858	0.32	0.26
	Female	19	3.175	0.834		
Autonomy	Male	65	3.305	0.670	0.12	0.38
	Female	19	3.026	0.725		
Risk-taking	Male	65	3.146	0.842	0.05	0.50
	Female	19	2.711	0.871		
Business development improvement	Male	65	3.479	0.649	0.03	0.52
	Female	19	3.106	0.716		
Business growth	Male	65	4.462	0.502	0.51	0.14
	Female	19	4.368	0.656		

The results of the t-test for gender, indicates that the p-values for **pro-activeness** (0.02), **risk-taking** (0.05) and **business development and improvement** (0.03). The variables are not greater than 0.05, which means that the participants answered the questions statistically in a significantly different manner. For the other variables, the p-values are greater than 0.05, which indicates that the participants answered the questions statistically significantly in a similar manner.

The effect size (d) for the variables **pro-activeness** (0.52), **risk-taking** (0.50) and, **business development and implementation** (0.52), have d-values that are greater and equal to 0.5. This indicates medium effect in terms of significant difference between males and females. For all the other variables no statistical significance difference was indicated between males and females.

4.10.2 Age group

Table 4.21 indicates the results of the mean values, p-values and effect sizes (d-values) for the dimensions of entrepreneurial orientation and perceived success of the pipeline gas company as a function of the age group. The questionnaire was completed by 10

participants' ≤29 age group, 40 participants' between 30-39 age group, 21 participants between 40-49 age group and 13 participants older than 50 years.

Table 4.21: Results of the T-test for age group

		N	Mean	Std. Deviation	p value	Effect Size		
						≤29 with	30 - 39 with	40 - 49 with
Competitive aggressiveness	≤29	10	2.3500	.79451	0.00			
	30 - 39	40	3.2924	.69712		1.19		
	40 - 49	21	3.3095	.53124		1.21	0.02	
	50+	13	3.7363	.49370		1.74	0.64	0.80
	Total	84	3.2532	.73241				
Pro-activeness	≤29	10	2.3000	.94502	0.01			
	30 - 39	40	3.1573	.82752		0.91		
	40 - 49	21	2.8214	.71433		0.55	0.41	
	50+	13	3.2981	.75955		1.06	0.17	0.63
	Total	84	2.9931	.84727				
Innovativeness	≤29	10	2.7333	.73367	0.06			
	30 - 39	40	3.3333	.94883		0.63		
	40 - 49	21	3.4921	.67181		1.03	0.17	
	50+	13	3.6282	.71412		1.22	0.31	0.19
	Total	84	3.3472	.85267				
Autonomy	≤29	10	2.6833	.80297	0.02			
	30 - 39	40	3.2792	.66387		0.74		
	40 - 49	21	3.2222	.67769		0.67	0.08	
	50+	13	3.5897	.44936		1.13	0.47	0.54
	Total	84	3.2421	.68860				
Risk-taking	≤29	10	2.5500	.59861	0.04			
	30 - 39	40	3.2625	.77615		0.92		
	40 - 49	21	2.7857	.81504		0.29	0.58	
	50+	13	3.1923	1.14634		0.56	0.06	0.35
	Total	84	3.0476	.86296				
Business Development Improvement	≤29	10	2.8143	.58559	0.02			
	30 - 39	40	3.4063	.68684		0.86		
	40 - 49	21	3.4617	.56886		1.11	0.08	
	50+	13	3.6951	.68642		1.28	0.42	0.34
	Total	84	3.3943	.67887				
Business Growth	≤29	10	4.5333	.54885	0.44			
	30 - 39	40	4.5083	.51743		0.05		
	40 - 49	21	4.2857	.62615		0.40	0.36	
	50+	13	4.4103	.43363		0.22	0.19	0.20
	Total	84	4.4405	.53813				

The p-values for **innovativeness** is higher than 0.05. This indicates that there was no statistically significant difference in the way participants of the various age groups responded to the questions. This indicates that there was a statistically significant difference in the way the different age groups responded to the questions.

The results of the effect sizes indicate that the d-values for all the variables for age group ≤ 29 and ≥ 50 years old had a higher than 0.3 value. This means the effect size indicated a medium and larger statistically significant difference.

4.11 SUMMARY

In this chapter the results of the empirical research were presented and discussed in terms of the quantitative results. Two questionnaires were administered, namely the one measuring entrepreneurial orientation variables and the one measuring the perceived success amongst managers of a pipeline gas company. Biographical questionnaires were developed to gather the demographical data of the participants. Five factors were extracted from the entrepreneurial orientation variable, which accounted for 66.06% of the total variance. The factors were labelled **competitive aggressiveness, pro-activeness, innovativeness, autonomy** and **risk-taking**. Two factors were extracted from the perceived success of a business, which accounted for 58.43% of the total variance.

The internal consistency and reliability of the participants were tested with Cronbach's alpha coefficients and only **risk-taking** was found to be less than 0.7 but higher than 0.6, therefore all variables were included in the study. Cronbach's alpha coefficients were found to be acceptable, which shows that a large portion of the variance is explained by the variables.

Results indicated that the research could accept a correlation between dimensions of entrepreneurial orientation and one variable of a business' perceived success, **business development and improvement** and **business growth**.

CHAPTER 5

CONCLUSION AND RECCOMENDATIONS

5.1 INTRODUCTION

The purpose of this chapter is to provide conclusions for and recommendations on the results obtained in the empirical study of this research. Conclusions are drawn regarding study objectives and the limitations that were identified throughout the course of the study are also discussed. Practical recommendations will be discussed to improve the entrepreneurial orientation within a business enterprise. Lastly recommendations will be presented for future research.

5.2 CONCLUSIONS

The objective of the study was to investigate the relationship between the entrepreneurial orientation of managers within a specific pipeline gas company and their perceived success of the business. The conclusions and recommendations on the entrepreneurial orientation are presented in this chapter. This consists of the conclusion drawn from the biographical data of the participants, the variable of entrepreneurial orientation and managers' perceived success of the business. It also measures the reliability of the questionnaire and the correlation between the entrepreneurial orientation and perceived success.

5.2.1 Conclusions on the biographical data of participants

Participants' information was obtained regarding their age, gender, race, position level, qualification and department. From the demographical information the following conclusions were drawn:

- As much as 87.63% of the managers returned the completed questionnaires. Of these 48.24% were managers within the age group of 30-39 years old. There was an almost equal split between managers in the ≤ 29 years range (11.76%) and managers in the 50 to 59 years range (12.94%). The findings were that a majority of managers at this pipeline gas company are younger than 49 years (84.71%), and about 60% younger than 39 years. This indicates that young people are persuaded to follow management careers in this company, which could impact positively on the dimensions of entrepreneurial orientation within this business enterprise.
- The results of the gender probe suggest that managers at this pipeline gas company make up a male dominated organisation in which male managers comprise 77.65%
- Most managers, who participated, are from the black race (56.47%), followed by the white race (28.24%). This indicates that diversity in race could impact positively on the dimensions of entrepreneurial orientation.
- The largest group (36.47%) of the participants has a post-graduate qualification and 34.12% have a three year degree, which is indicative of the company's requirements.
- The largest group (47.06%) of participants are from the senior Level (5B-4) of management, followed by middle (7-6C) management (44.71%). This indicates that managers implement strategies for the company to succeed.
- The company that was researched has 10 departments, of which Production (24.71%) is the largest one. This indicates that the production team delivers the services or product to the customers and hence can impact positively on the company's success.

5.2.2 Conclusions on the reliability of the questionnaire

Cronbach's alpha coefficients were measured to determine the questionnaire's reliability. It was found that only one variable, **risk-taking**, has a Cronbach-alpha coefficient lower than 0.7, but within the range of 0.6 to 0.7. Therefore this variable was included in the study.

The results suggest that the measuring instrument of Cronbach's alpha coefficients, which was used to measure perceived success and entrepreneurial orientation at the pipeline gas company was reliable. Only three variables scored higher than 0.8 Cronbach-alpha coefficients, which imply that the internal consistency of the questionnaire is good.

5.2.3 Conclusions on entrepreneurial orientation

The Conclusions will be categorised in accordance with the individual variables or dimensions of entrepreneurial orientation.

5.2.3.1 Innovativeness

The variable **innovativeness** has the highest rating and obtained a mean value of (mean=3.30), the statements A12, A9 and A13 scored the highest. This indicates a strong emphasis on continuous improvement of products, services and processes, the business is continually pursuing new opportunities, and that innovation is considered to be a necessity for the future of the business. Although **innovativeness** obtained the highest mean value, there are still room for improvement.

According to Lotz (2009: 284), the result of a successful innovative management programme will be that innovative projects will develop from ideas and needs into concepts which the business launches. An innovative management programme needs to be launched in order for the pipeline gas company to improve the innovativeness in their business.

5.2.3.2 Autonomy

The variable **autonomy** obtained the second highest rating of mean values (mean=3.27) and the lowest standard deviation value of 0.94. This indicates that **autonomy** is also has the strongest effect on entrepreneurial orientation particularly in this pipeline gas company. Standard deviation indicates that participants' views are relatively less spread and some participants did experience **autonomy** in the

workplace. Regarding the statement A1 (mean=4.13), managers agree that individuals have enough autonomy in their job without continual supervision to do their work.

In contrast to **autonomy** the participants view statement A5 (mean=2.29) in a positive light. This indicates that most managers are still following the same work methods or steps while performing their day to day task. Attention has to be given to routine work, seeing that autonomy can also impede the development of an entrepreneurial orientation in the business.

5.2.3.3 *Competitive aggressiveness*

The variable **competitive aggressiveness** (mean=3.14) obtained the third ranking with respect to entrepreneurial orientation with a mean value of above average. The mean values of the different statements that measure **competitive aggressiveness** range from 2.99 to 3.43, which all indicate a positive agreement with the statements. This is in line with study by Dafel (2012), who found Competitive aggressiveness not to have any significant influence on the perceived success of an agri-business. It also disagrees with the study done by Lotz and Van der Merwe (2013), Lumpkin and Dess (2001) as well as by Lumpkin *et al.* (2010), who determined that no relationship exists between the variable **competitive aggressiveness** and the dependant variables of perceived success.

5.2.3.4 *Pro-activeness*

The variable **pro-activeness** had a mean value (mean=3.02) and obtained the fourth ranking, which is second lowest for the participants. Participants were in disagreement with statements A20 and A21. This implies that this pipeline gas company is not the first to introduce new products or processes, and the managers in question does not typically initiates actions which competitors respond to.

Pro-activeness it can create a first-move advantage whereby a business can obtain a favourable market-share standing, which will be hard for other companies to duplicate,

according to David (2007) and Dafel (2012). Therefore pro-activeness at a pipeline gas company is an important asset as explained by Lotz and Van der Merwe (2013), and can be a decisive advantage to the business. Thus this pipeline gas company needs to focus its attention to increase the pro-activeness in the business strategy.

5.2.3.5 Risk-taking

The variable **risk-taking** obtained the fifth ranking with respect to entrepreneurial orientation. The result of the mean value was 2.97; statement A16 (mean 2.96) and A19 (2.46), scored lower by the participants response. This indicates a disagreement with to the proposition that the business has a strong inclination towards high-risk projects, and that the term “risk-taker” is considered as a positive attribute for employees in the business.

Dewett (2004: 258) points out that there are always risks involved when any new project is initiated. The variable **risk-taking** measured very low and the managers at all levels are in an agreement with this dimension. Improvements can be made by taking calculated risks on all level of management. This is because all employees are suspicious of risks, as mentioned by Lotz and Van der Merwe (2013). Thus the procedures related to **risk-taking** should be clear and supportive.

5.2.4 Conclusions on perceived success

For the research, 11 questionnaires were compiled to measure perceived success in a pipeline gas company. These questionnaires were presented to participants in order to measure the different variables of perceived success of this business enterprise.

5.2.4.1 Business growth

Business growth is a variable that measures perceived success of a business. This variable obtained the first ranking since it scored the highest mean value (mean=4.25). The result indicates that the pipeline gas company under investigating is experiencing positive business growth. Business growth is well established, which shows that the organisation is pursuing most of its objectives.

5.2.4.2 *Business development and improvement*

The variable **business development and improvement** has obtained a second ranking for the perceived success of the business, by scoring the mean value of 3.35. The statements used to measure the variable **business development and improvement** indicated a mean value ranging from 2.92 to 3.63.

The statements B7 (mean=3.00) and B11 (mean=2.92), scored close to neutral value. This indicates disagreement that employees are viewed as the most valuable asset of the business and that investments in research and development projects continue, with no financial cuts during difficult economic periods. This is an important challenge that this pipeline gas company needs to rectify, to ensure the commitment of the employees towards the objectives of the business.

5.2.5 *Conclusions on the correlation between variables of entrepreneurial orientation and those of perceived success*

One of the objectives of the present study was to determine the relationship between entrepreneurial orientation and the managers' perceived success of the business. Overall the result indicates that **business development and improvement** has a positive and effective relationship with entrepreneurial orientation variables, seeing that the results are above 0.3 (the value set for practical significance)., These findings are supported by Lotz and Van der Merwe (2013), who found that positive relationships exist between the entrepreneurial orientation factors and **business development and improvement**.

The results thus show that managers in the participating business perceived the following factors of entrepreneurial orientation to influence business development and improvement: i.e. **pro-activeness, autonomy, innovativeness** and **competitive aggressiveness**.

The pipeline gas company is a business that monitors market trends and future needs of customers; is pursuing opportunities created by these trends and needs to improve its services, encouraging its employees to manage their own work without continual supervision and allow them to be creative and flexible. Therefore this company is more likely to experience an increased efficiency and effectiveness of the business, an improved company image and highly committed employees, which means increased job satisfaction.

The variable **business growth** shows a positive but weaker relationship with all the variables of entrepreneurial orientation, of which all the correlation values are less than 0.3.

5.3 RECOMMENDATIONS

To enhance the entrepreneurial orientation within the pipeline gas company under investigation, the following recommendations are put forward:

- Entrepreneurial orientation has its roots in the business strategy. Therefore it is recommended that this company makes entrepreneurship the strategic way of thinking and include this orientation in the formulation of the values or vision of the company.
- Managers should focus their efforts on initiatives to become more pro-active. They should understand and utilise the strong positive relationship between **business development and improvement** and **pro-activeness**.
- Managers must also improve their level of innovativeness, competitive aggressiveness and autonomy. The strong correlation between the variables **autonomy, competitive aggressiveness** and **innovativeness** and **business development and improvement** should be kept in mind and utilised.
- The **risk-taking** behaviour for this company needs to be encouraged. This can be done by conveying to employees that risk-taking behaviour is acceptable, even if it evokes the image of failure. Initially the employees will be sceptical and it is necessary to set up rules to encourage risk-taking, they are afraid of failure

and to be reprimanded by management. If a risk fails someone has to take the blame. This seems to be the way corporative management works.

- New ideas and opportunities need to be turned into new products, services or processes by setting goals and objectives. This will results in incremental as well as intemperate innovations.

Finally the pipeline gas company must create opportunities for an entrepreneurial orientation to inform the bottom line of the business. This can be achieved by focusing on linking business growth to entrepreneurship and by analysing the trends for each innovation that is created. There is a perception that some employees do not feel they are a valuable asset to the business. The management in this pipeline gas company needs to rectify this view throughout the organisation, by giving preference to the entrepreneurial orientation.

5.4 ACHIEVEMENT OF THE OBJECTIVES

The measuring of the present study's success is based on the achievement of the primary and secondary objectives, as indicated in section 1.3 of this study.

5.4.1 Primary objective

The primary objective of the study was to investigate the relationship between the entrepreneurial orientation of the pipeline gas company and the managers' perceived success of the business. The research was done with the aim of providing suggestions on improving the entrepreneurial orientation, upturning the innovation and to be more competitive. This objective was achieved as attested by **chapter four**, in which the results were analysed and by realising the secondary objectives of the study.

5.4.2 Secondary objectives

The secondary objectives in support of the primary objective of this research are formulated as follows:

- To gain insight into entrepreneurship through conducting a literature study.
Evaluation: achieved in chapter two.
- To study the concept of entrepreneurial orientation.
Evaluation: achieved in chapter two.
- Use statistical analysis to determine the reliability of the questionnaire.
Evaluation: achieved in chapter four.
- To determine the correlation between entrepreneurial orientation and the perceived success of business.
Evaluation: achieved in chapter four.
- To measure the current entrepreneurial orientation in the pipeline gas company by means of a questionnaire.
Evaluation: achieved in chapter four.
- To determine the demographic differences in terms of age, gender, race, qualification and department, as well as the constructs measuring the entrepreneurial orientation.
Evaluation: achieved in chapter four.
- To determine the perceived success of the business.
Evaluation: achieved in chapter four.
- To make recommendations for future research and practice.
Evaluation: achieved in chapter five.

5.5 SUGGESTIONS FOR FURTHER RESEARCH

Only managers of the pipeline gas company participated in the research by answering the questionnaires. The study was limited to South Africa, and only managers employed by a single company were participating. The challenges for other companies working in

the pipeline-gas sector might be completely different, therefore the results of this study cannot be generalised to all the exponents of a pipeline gas company.

A suggestion for further study would be to conduct similar studies in other exponents of such a pipeline gas company. It would also widen the scope to include employees at shop floor level, other than management and its view. Or the view of both levels can be researched and the outcomes compared.

5.6 SUMMARY

This chapter provided conclusions, on the various aspects that were investigated in this study. These include: the biographical data of the participants, the reliability of the questionnaires, the variables of entrepreneurial orientation and perceived success, as well as the correlation between them. The limitations of the research were pointed out and recommendations were made for the pipeline gas company to follow up, as well as suggestions for future research in this business sector. To sum up: All the theoretical and empirical objectives that were formulated for this research have been attained.

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APPENDIX: A

SECTION A: ENTREPRENEURIAL ORIENTATION QUESTIONNAIRE

This section consists of 27 statements. Please indicate to what extent you agree or disagree with each statement. Please mark the applicable block with a cross (X).

		Strongly disagree	Disagree	Neither Agree nor disagree	Agree	Strongly Agree
A01	I have enough autonomy in my job without continual supervision to do my work.	1	2	3	4	5
A02	Our business allows me to be creative and try different methods to do my job.	1	2	3	4	5
A03	Employees in our business are allowed to make decisions without going through elaborate justifications and approval procedures.	1	2	3	4	5
A04	Employees in our business are encouraged to manage their own work and have flexibility to resolve problems.	1	2	3	4	5
A05	I seldom have to follow the same work methods or steps while performing my major tasks from day to day.	1	2	3	4	5
A06	Our business regularly introduces new services or/and products or/and processes.	1	2	3	4	5
A07	Our business places a strong emphasis on new and innovative products or/and services or/and processes.	1	2	3	4	5
A08	Our business has increased the number of products or services offered during the past two years.	1	2	3	4	5
A09	Our business is continually pursuing new opportunities.	1	2	3	4	5
A10	Over the past few years, changes, in our processes, services and product lines have been quite dramatic.	1	2	3	4	5
A11	In our business there is a strong relationship between the number of new ideas generated and the number of new ideas successfully implemented.	1	2	3	4	5
A12	Our business places a strong emphasis on continuous	1	2	3	4	5

	improvement in products/services delivery/ processes.					
A13	Our business has a widely held belief that innovation is an absolute necessity for the business's future.	1	2	3	4	5
A14	Our leaders seek to maximize value from opportunities without constraints to existing models, structures or resources.	1	2	3	4	5
A15	When confronted with uncertain decisions, our business typically adopts a bold posture in order to maximize the probability of exploiting opportunities.	1	2	3	4	5
A16	In general, our business has a strong inclination towards high-risks projects.	1	2	3	4	5
A17	Owing the environment, our business believes that bold, wide-ranging acts are necessary to achieve the business's objectives.	1	2	3	4	5
A18	Employees are often encouraged to take calculated risks concerning new ideas.	1	2	3	4	5
A19	The term "risk-taker" is considered a positive attribute for employees in our business.	1	2	3	4	5
A20	Our business is very often the first to introduce new products/services/processes.	1	2	3	4	5
A21	Our business typically initiates actions which competitors respond to.	1	2	3	4	5
A22	Our business continuously seeks out new products/processes/services.	1	2	3	4	5
A23	Our business continuously monitors market trends and identifies future needs of customers.	1	2	3	4	5
A24	In dealing with competitors our business typically adopts a very competitive undo-the-competitor "posture.	1	2	3	4	5
A25	Our business is very aggressive and intensely competitive.	1	2	3	4	5
A26	Our business effectively assumes an aggressive posture to combat trends that may threaten our survival or competitive position.	1	2	3	4	5
A27	Our business knows when it is in danger of acting overly aggressive (this could lead to erosion of our business's reputation or to retaliation by our competitors).	1	2	3	4	5

4 SECTION B: PERCEIVED SUCCESS OF THE ORGANISATION

.This section consists of 11 statements, related to the perceived success of the organization. Please indicate to what extent you agree or disagree with each statement. Please mark the applicable

		Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
B01	Our business has experienced growth in turnover over the past few years.	1	2	3	4	5
B02	Our business has experienced growth in profit over the past few years.	1	2	3	4	5
B03	Our business has experienced growth in market share over the past few years.	1	2	3	4	5
B04	The competitive position of our business has improved over the past few years.	1	2	3	4	5
B05	The efficiency (doing things right) of our business has improved over the past few years.	1	2	3	4	5
B06	In our business, employees are viewed as the most valuable asset of the organisation.	1	2	3	4	5
B07	The morale (job satisfaction) of our employees has improved over the past few years.	1	2	3	4	5
B08	Our employees are highly committed to our business.	1	2	3	4	5
B09	The effectiveness (doing the right things) of our business has improved over the past few years.	1	2	3	4	5
B10	The image (stature) of our business, relative to our competitors, has grown over the past few years.	1	2	3	4	5
B11	During difficult economic periods, investments in research and development/innovative projects continue and no significant financial cuts are made.	1	2	3	4	5

5 SECTION C: BACKGROUND INFORMATION

The following information is needed to help with the statistical analysis of data for comparisons among different interest groups. All your responses will be treated confidentially. Your assistance in providing this important information is appreciated. Please mark the applicable block with a cross (X).

C01	Indicate your age group	≤ 29	30 – 39	40 -49	50 – 59	60+
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C02	Indicate your gender	Male	Female
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C03	Indicate your race	African	White	Coloured	Indian
	Other:(Specify):				

C04	Indicate your highest academic qualification				
	Lower than Grade 12				
	Grade 12				
	National certificate				
	National Diploma				
	3-year degree				
	Post graduate qualification				

C05	Indicate your level	Level 3+	Level 5B – 4	Level 6C - 7	Level 8 & above
	Other: (Specify				

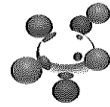
C06	Indicate your department				
	Production	Maintenance	Facility	Executive	Finance
	Human Resources	Information Management	Legal	Engineering, Planning and Technology	Supply Chain

				Marketing
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THANK YOU VERY MUCH FOR YOUR VALUED INPUT.

APPENDIX: B

SASOL
reaching new frontiers



CONFIDENTIAL

Direct telephone +22 11 865 8600

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Email:
andrew.mokgoto@sasol.com

27 September 2013

Dear Janice Milton-Goezaar

Re: Request for permission to conduct an academic Research study using Sasol Gas Employees as partial fulfilment of MBA studies

I am a registered final year MBA student at the Potchefstroom Business School at the North-West University. As partial fulfilment of my MBA studies, I am currently conducting a research project for a dissertation. The title of my research is 'An assessment of entrepreneurial orientation at a pipeline gas company'.

I hereby request permission to conduct the study using Sasol Gas employees. The research will be done using the attached questionnaires. A random sample of employees will be selected and the questionnaires will be answered anonymously. A concerted and conscious effort will be at all times to keep the results **confidential**. The results will be used purely for academic purposes. Please indicate below if permission is granted and attach your signature.

Kind Regards,

Andrew Mokgoto

Permission granted	YES	NO
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Signature:

Janice Milton-Goezaar

Manager: Corporate & Business Governance

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Company Secretary: Sasol Group Services (Pty) Ltd 2006/011591/07