

An assessment of entrepreneurial orientation in the explosives manufacturing and marketing industry

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Abstract

This study intended to establish whether there was a link between the entrepreneurial orientation dimensions and the perceived success of the explosives manufacturing and marketing industry within South Africa. The five dimensions of entrepreneurial orientation (autonomy, innovativeness, pro-activeness, risk-taking and competitive aggressiveness), were used in the study to establish a link between them and the perceived success of the business.

A literature study was conducted prior to the survey being distributed and links between the entrepreneurial orientation dimensions and the perceived success were found in other studies. The various studies indicated that the dimensions act either independently or interdependently. Various significant relationships were found in other industries between the entrepreneurial orientation dimensions and perceived success.

To conduct the empirical study, a structured questionnaire was distributed to the Sasol Nitro Explosive Division. The questionnaire was distributed by sending out an e-mail containing link that connected the respondents to the questionnaire. After the respondents had completed the survey, a data analysis was done by the statistical department of the North-West University, Potchefstroom Campus. The reliability of the data was tested by calculating the Cronbach alpha coefficients. The instrument data was found to be reliable and could be interpreted as a valid data source.

The questionnaire used two dependable variables to measure the business's perceived success, namely business growth and business development and improvement. The five entrepreneurial orientation dimensions were measured against the dependable variables. A total of 139 respondents' surveys could be utilized for the analysis.

The research within the Sasol Nitro Explosive Division indicated that there was a link between the entrepreneurial orientation dimensions and perceived success. Three of the dimensions indicated a significant relationship with regard to each other, and that of the perceived success of the business. These dimensions were Autonomy, Innovativeness and Pro-activeness. Autonomy and Innovation indicated a significant relationship

pertaining to the perceived performance factor of growth within the business and Autonomy while pro-activeness indicated a significant relationship relating to the perceived performance factor of business development and improvement. Recommendations were made to the business to nurture the corporate entrepreneurial environment within the company.

Key words

- Intrapreneurship
- Corporate entrepreneur
- Corporate entrepreneurial orientation
- Business Growth

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CHAPTER 1

NATURE AND SCOPE OF THE STUDY

1.1 INTRODUCTION

Porter (2013:1) states that the mining houses need to innovate their systems, including cost cutting, because of lower commodity prices. The explosives industry in South Africa supplies the mining industry with the necessary blasting related products, which assists in extracting the mineral resources.

It is up to the explosives manufacturing industry to come up with new innovative methods to manufacture and apply their products. This will assist their core market in reducing costs, becoming more competitive and improving internal efficiencies as well as the sustainability of the explosives companies, thus improving performance. David Butler, the Vice President of Innovation at Coca Cola in the United Kingdom, has stated in an interview that the only way in which companies can achieve high levels of growth, is through business plan innovation (Barnes, 2013:1).

According to Kroon (1998:15), the literature defines the Intrapreneur as a person with the vision, responsible for the innovation in an organisation. The Intrapreneur is someone who does not want to manage a business as an individual, but who would rather, through utilizing groups internally, motivate them to function optimally. In a business an environment where ideas flow freely and resources are available ensures that innovation takes place (Kroon, 1998:19).

Corporate entrepreneurship, as cited by Dess and Lumpkin (2005:147), is based on the internal functioning of a company with two main aims namely: the creating of new ventures and business renewal. Dess & Lumpkin (2005:147) have also mentioned that corporate venturing has been labelled as “Intrapreneuring” by Gillford Pinchot, who in turn links intrapreneurship with corporate entrepreneurship. According to Lotz and Van der Merwe (2013:15), the ability of businesses to keep on developing or innovating new products continuously, processes and other internal business related activities will be a key success factor so as to be able to compete in the market.

Entrepreneurial orientation relates to the strategic processes taking place in the organisation, so as to be able to use innovation within the organisation to formulate new corporate ventures (Dess & Lumpkin, 2005:147). According to Dess and Lumpkin (2005:148), many young companies link their success to entrepreneurial orientation.

Five dimensions exist within the research done with regard to entrepreneurial orientation, namely: Autonomy, Innovativeness, Pro-activeness, Competitive aggressiveness and Risk-taking (Lotz & Van der Merwe, 2013:15; Dess & Lumpkin, 2005:148; Lassen, Gertsen & Riis, 2006:360).

1.2 PROBLEM STATEMENT

Given the current economic climate in the mining industry in South Africa, which is hit by combined price reductions, rapidly escalating production costs, and increased industrial action (Chamber of Mines, 2012:33), it will be essential for South African suppliers to the mining industry, such as explosives companies, to reinvent themselves because of the mining houses' cost cutting approach to curb their economic problems. The explosive companies will need to find new and more innovative ways to design, manufacture, supply, and apply their products within the South African market.

It is clear from previous studies that a positive relationship between entrepreneurial orientation and performance is supported (Frese, Lumpkin, Rauch & Wiklund, 2014:21). This means that if effort and action are placed into entrepreneurial orientation, performance should increase positively. The knowledge based on entrepreneurial orientation is growing rapidly (Frese *et al.*, 2014:3) and more than 100 studies on this subject have been recorded.

The entrepreneurial orientation research pertaining to performance in South Africa, is still an under-explored topic (Lotz & Van der Merwe: 2013:16), with most of the research base being conducted in the USA. No research has however been conducted on this topic in the explosives manufacturing and marketing industry. It is from this point of view that the subject of entrepreneurial orientation with regard to perceived performance needs to be investigated in the explosives industry.

1.3 OBJECTIVES OF THIS STUDY

1.3.1 Primary objective

The primary objective of the study is to assess the current level of entrepreneurial orientation within the explosives manufacturing and marketing business, with relation to perceived performance.

1.3.2 Secondary objectives

In order to achieve the primary objective of the study, the following secondary objectives are required:

- A Literature study should be conducted with regard to corporate entrepreneurial orientation and the relationship between entrepreneurial orientation and perceived performance. The literature study is required to assist the researcher with:
 - Defining corporate entrepreneurship and entrepreneurial orientation.
 - Gaining insight into the entrepreneurial environment.
 - Gaining insight into the various components of entrepreneurial orientation.
 - Exploring previous studies conducted on the topic with relation to entrepreneurial orientation, and the relationship between entrepreneurial orientation and perceived company performance.
- Conduct an empirical study in order to:
 - Assess the current entrepreneurial orientation environment within the explosives company with relation to the business's perceived performance.
 - Assess the dependent and independent variables.
 - Gain insight into the geographical information of the study sample.
- Draw conclusions concerning the link between entrepreneurial orientation and business performance, with regard to the following:
 - Whether a positive relation between the dependent and independent variables can be established.
 - The current status of the entrepreneurial orientation environment.
- Give certain recommendations with regard to the results to the explosives manufacturer.

1.4 SCOPE OF THE STUDY

1.4.1 Field of the study

The field of the study is the entrepreneurial environment while the focus is on the entrepreneurial orientation's relationship with regard to company performance within the explosives manufacturing and marketing industry in South Africa.

1.4.2 Organisation under investigation

The company that will be investigated is a well-established explosives company in South Africa, namely Sasol Nitro Explosives. The company has various manufacturing plants throughout South Africa and is able to supply a full range of explosives and explosive accessories to the local and international markets.

The explosives industry in South Africa currently supplies various markets within the boundaries of the country, other African countries, as well as abroad. These markets vary from mining and military to civil engineering, to name but a few. The main market though is mining which contributes to approximately 95% of the sales for most of these companies. The main players in the South African explosives industry are AEL, BME, Sasol Nitro Explosives, Orica and Maxam. The research in this document only focuses on Sasol Nitro Explosives.

The explosives industry has originated because of the gold rush that took place in South Africa during 1886 to 1896 (Anon 1, 2014). It was during this time that the first explosives factories were established. South Africa being rich in mineral deposits, (which is extracted using various mining techniques) created the perfect market environment for the explosives manufacturing industries. The minerals that are extracted through blasting, are gold, iron, phosphates, diamonds, manganese, platinum, chrome and lime, to name but a few (Delpierre & Sewell:2012). The mining operations utilize the various explosives products from the suppliers to blast the ore bearing rock into smaller fragments, which they are then able to transport via a logistical system to the reduction plants.

There are mainly two types of mining in South Africa, namely underground mining and opencast/open pit mining:

- **Underground mining:** Underground mining is where the ore bearing reefs are situated too deep to be extracted from an open pit. These areas are then accessed by blasting shafts, tunnels and other excavations so as to be able to reach the ore body that needs to be extracted.
- **Opencast/open pit mining:** The ore body of open pit mining is situated close enough to the surface to be excavated through open pit mining techniques.

The underground market segment consists of various mining houses that extract the ore bearing rock through various tunnelling and stoping techniques. This market utilizes a combination of explosives and explosive accessory products to be able to blast the excavations required. The main explosive types that they utilize are:

- ANFO based explosives (bulk and packaged).
- Watergel and emulsion cartridge explosives.
- Bulk emulsion explosives.
- Explosive detonating cord and boosters.

The main explosive accessories that they utilize are:

- Non electric shock tube detonating systems.
- Centralised blasting systems.

The methods that these mining houses use consist of the following:

- Shaft sinking

Shaft sinking is the main tunnelling done in order to access the ore body. It is also used for the transporting of men and material and serves as the main access to the underground workings. There are various types of shafts used, namely: vertical shafts (circular, rectangular and oval shafts) and decline shafts (rectangular, square or D-shaped decline shafts).

- Development

Development is tunnelling done to the ore body from the shafts. This is usually done vertically on different depths, depending on the geological ore body structure. The main purpose is to serve as an access way for men, material and ore.

- Stopping

Stopping is the mining practice used to blast the ore body itself. There are various stopping methods, namely conventional, board and pillar, retreat, long hole vertical, and sequential grid stopping.

The open pit market segment consists of various mining houses that extract ore bearing minerals and other materials. Open pit mining takes place from the surface; the top waste rock is removed by means of blasting to establish benches. After the waste rock has been removed, the ore bearing rock is blasted using the same techniques. No tunnelling is conducted in the open pit mining method.

The demand for explosives is mainly driven by the mining taking place. The mining taking place is mainly driven by the demand for minerals and other materials that can only be obtained through mining practices. Take coal mining as an example - this mining demand is mainly driven by the demand for electricity. Coal is used to generate electricity for human and industrial consumption. During the colder months, the demand for electricity is higher due to more electricity being used for heating purposes. This in turn creates a larger demand for coal, which in turn creates a larger demand for explosives used in blasting the required coal.

1.5 RESEARCH METHODOLOGY

1.5.2 Literature review

The literature review requires a more extensive review of the topic itself for the dissertation (Wellmann, 2012:38). It is important to plan the research carefully by structuring the study and keeping the following in mind (Wellmann, 2012:40):

- Defining what parameters will be required for the research.
 - This is crucial as it forms the base of what the research will entail.
 - The following need to be specified: language of research, area of study, which area of business will be studied, as well as geographical area.

- Key words that will be used to do research on the topic at hand:
 - Corporate entrepreneurship.
 - Entrepreneurial orientation.
 - Business performance.
 - Human factors with regard to corporate entrepreneurship and/or intrapreneurship.

- Discussing the research with knowledgeable people.

The author used various resources to review the subject at hand. Resources utilized were:

- Google scholar.
- Topic related literature.
- Previous research papers conducted on the topic of entrepreneurial orientation obtained through the Ferdinand Postma library of the North-West University.
- Knowledgeable people with in-depth knowledge of the topic.

1.5.2 Empirical study

Empirical research will be done by means of conducting surveys using questionnaires. The questionnaires will be distributed through a link sent to the sample population via e-mail. This link will connect the individual to a software programme (Survey monkey), and after

completing the questionnaire, the data will be stored until all required submissions have been received. The data will then be analysed through the assistance of the North-West University's Statistical Consultation Services.

1.5.2.1 Measuring instrument

The questionnaire used for research purposes is part of one that has been designed by Dr. Henry Lotz at the NWU Potchefstroom Business School. Five entrepreneurial orientation variables will be tested to determine their influence on the perceived success of a business (Lotz & van der Merwe, 2013:15). The study will be conducted to either confirm or deny the relationship between the entrepreneurial orientation variables and the perceived performance obtained.

The questionnaire utilizes a five-point Likert scale on which the sample population will have to indicate their degree of agreement and/or disagreement (1=strongly disagree to 5=strongly agree) with the statements measuring the variables. The questionnaire will consist out of three sections. The first section aims to determine the respondents' perceptions concerning the dimensions of entrepreneurial orientation; the second section intends to establish the respondents' perceptions about their perceived view of business success; while the last section will be included to establish biographic profiles of the respondents.

1.5.2.2 Study population and sample

The study population consists of all the workers and management teams at the different manufacturing and marketing units of the participating organisation. The reason for the inclusion of all levels of workers is also to establish whether entry level workers' innovative ideas are recognised and considered.

The study population consists of the following types of employees:

- Factory manufacturing personnel.
- Head office personnel.
- Marketing personnel and support staff.

The human resources department of the company will assist the researcher in providing a list of all the people currently working for the company. This list will then be utilized to obtain a relevant sample for the purpose of the study.

1.5.2.3 Data collection

The following methods will be utilized to gather the data:

- The software programme will be purchased so as to enable the researcher to apply the software to design the questionnaire.
- An introduction letter will be sent to the sample population via e-mail, explaining the topic at hand and the reasons why the study is conducted. All ethical issues regarding the completion of the questionnaire will also be explained.
- An e-mail containing a link to an electronic version of the questionnaire will be sent to all the identified personnel via email. Questionnaires will be collected and will be stored until the analysis could take place.

1.5.2.4 Statistical analysis

The data collected will be statistically analysed by professionals in the field. The Statistical Consultation Services of the North-West University will be consulted and will be utilized to analyse the data.

1.6 LIMITATION OF STUDY

The study attempts to link the independent variables with the dependent variables. The entrepreneurial orientation variables and the variables regarding the perceived performance of the company have been investigated in this study. There are four main explosives manufacturing companies within South Africa, namely: Sasol Nitro, AEL, BME, Orica and Maxam.

There are however international companies also operating in South Africa, namely Master Blaster, Orica and other smaller players in the market. The study has only been conducted

in one of the explosives manufacturing and marketing companies and can therefore not be considered to represent the total explosives manufacturing and marketing market.

1.7 LAYOUT OF THE STUDY

The layout of the study will follow the following format:

Chapter 1 – Nature and scope of the study

This chapter will provide a background to the study conducted. It will explain the methodologies applied to obtain relevant, credible information regarding the subject. The first part of the nature and scope of the study will give an introduction into the market being utilized for the study.

The problem statement will be applied to obtain the primary and secondary objectives. From these objectives the scope of the study will be explained through briefly describing the field of the study, and the company where the study will take place.

The total research methodology will be dealt with and detailed information regarding the different aspects explained.

Chapter 2 – Literature review on entrepreneurial orientation

The literature review will examine and investigate the entrepreneurial orientation variables with regard to perceived performance. The link between entrepreneurial orientation and the performance of a company will also be investigated through already publicised studies that have been conducted. The review will provide guidance and knowledge of the topic at hand. It will define entrepreneurial orientation and will also give insight into all the variables associated with the topic with regard to the company's performance.

Chapter 3 – Empirical research

This chapter will explain the methodology used and followed in obtaining and statistically quantifying the research done. Both the dependent variables as well as the independent variables will be explained through the statistical analysis conducted.

Chapter 4 – Conclusions and recommendations

Conclusions about the empirical research outcome will be derived and explained. Thereafter, recommendations will be made to ensure that the organisation under investigation manage their entrepreneurial orientation environment. This chapter will be concluded with an evaluation of the achievement of objectives and suggestions for future research.

CHAPTER 2

OVERVIEW OF ENTREPRENEURIAL ORIENTATION

2.1 INTRODUCTION

The following sections intend to gain a more in-depth knowledge of the literature surrounding the subject of entrepreneurial orientation and the relation it has with perceived success. It also defines and explains the core dimensions of the field being investigated.

2.2 DEFINITIONS

If we consider the meaning of the word “definition”, we note that it is an “act of making definite, distinct or clear” (Harper, 2014). This assists in explaining the meaning of the dimensions used in the study, and to clarify the meaning thereof. It also ensures that the concept used during this study is not confused with other similar concepts.

2.2.1 Entrepreneur

According to an online business dictionary (Anon 2, 2014), an entrepreneur is a person who utilizes an opportunity that he identified, in order to gain the benefit of that certain opportunity through investing his time and money into developing a product or service for customers, and to realize a profit in doing so. The entrepreneur is a much wider initiator of acting innovatively and acting on ideas to enable him to brainstorm, and to create and sell new products and services (Kroon, 1998:2). According to Cronje, du Toit, Motlala & Marais (2004:6), the entrepreneur is the heart of the business environment with the ability to constantly create new products and services through innovation. The above indicates that an entrepreneur is the key to developing new innovative products and services, and by investing his own time and money in the opportunity, he requires a certain return from his efforts. There are however certain advantages and disadvantages to being an entrepreneur (Kroon, 1998:3):

Advantages

- Independence because of operating one's own business or managing that business. You are your own boss.
- Realizing one's full potential with regard to the opportunity.
- Making a profit from the opportunity.
- Positively contributing to one's surrounding society.

Disadvantages

As cited by Kroon (1998:3) and Scarborough and Zimmerer (1993:10-12) they found that of all new businesses, 63% would fail within the first six years, indicating the risk of being an entrepreneur. These risks and disadvantages are:

- If the business fails, one's reputation and confidence can be damaged.
- Uncertainty of income that would be generated due to certain external forces.
- Losing all capital invested in the venture when failing.
- Decreasing the quality of one's personal life due to working longer hours.

An entrepreneur is also a person who engages in entrepreneurship through using his innovative ability and by being highly motivated. He often takes a calculated risk to explore the opportunities identified by him (Cronje *et al.*, 2004:40).

2.2.2 Entrepreneurial environment

The entrepreneurial environment refers to the environment which contains certain factors that play a role in nurturing entrepreneurs and to the internal and external influences on the entrepreneur (Fogel, 2001:103). This entails all factors that influence the entrepreneur in his quest for achieving success through his innovative thinking and application.

According to Cronje *et al.* (2004:42), there are some environments that are more favourable to entrepreneurship - these environments may either enable or discourage entrepreneurs.

2.2.3 Corporate entrepreneurship

Corporate entrepreneurship is the innovative process that materializes within a business environment that leads to potential new customers, new product developments, better services and improved processes (Maes, 2004:14). According to Harms (2013:411), corporate entrepreneurship is defined as the entrepreneurship within a business.

Corporate entrepreneurship, as cited by Antoncic and Hisrich (2003:200), can be defined as the individuals within a business who follow and act on opportunities which are independent of the controllable resources currently held by those individuals, i.e. they explore new opportunities. From this it can be derived that corporate entrepreneurs' function within a business environment where they use their own ideas and innovation to grow the business that they own or work for.

Dess and Lumpkin (2005:148) indicated that corporate entrepreneurship has two primary functions, namely strategic renewal and new opportunity and venture perusal. Both these functions aim at growing the business and making it more profitable. Dess and Lumpkin (2005:148) also indicated that corporate entrepreneurship is more focused on the internal development of new venture opportunities which in turn should grow and increase the performance of the business. The corporate entrepreneur realizes opportunities and seizes them for the benefit of the company as well as for personal satisfaction.

From all of the above-mentioned, it can then be derived that a corporate entrepreneur is a person that creates products and services through innovative thinking within an organisation. By doing this he creates a competitive edge for the company to enhance the company's performance. For this to happen though, the company needs to be entrepreneurially orientated to take advantage of the corporate entrepreneur's innovative ways and thinking.

2.3 ENTREPRENEURIAL ORIENTATION

Entrepreneurial orientation can be described by the acting and implementation of innovative processes, new practices and making innovative decisions to create new products, services and more effective processes (Chang, Lin, Chang & Chen, 2007:999). This includes methods of planning and implementing innovative strategies to move into new ventures within a business (Dess & Lumpkin, 2005:147). The corporate entrepreneur is responsible for the ideas and the implementation of the ideas to be able to create new products and services for the company to use as a strategic advantage.

The outcome of certain business- and management related preferences, actions and new ventures, relates to the entrepreneurial orientation of the organisation (Covin, Green & Slevin, 2006:57). According to Covin and Lumpkin (2011:856), the entrepreneurial orientation field of study is still widely polarised and further studies need to be conducted to eliminate the differences of the concept. To explain the concept, we need to look at what orientation means so that a full understanding of the concept can be realized. Merriam Webster's dictionary refers to orientation as a "person's feelings, interests and beliefs" (Gove, 1972).

Entrepreneurial orientation can be understood as the direction of thought, interest or belief with regard to entrepreneurship. Entrepreneurial orientation also receives its direction from the strategy making processes which a business uses to function with, as indicated by the literature (Harms, 2013:411; Dess & Lumpkin, 2005:147).

2.4 DIMENSIONS OF ENTREPRENEURIAL ORIENTATION

Five dimensions of entrepreneurial orientation have been identified during the research (Dess & Lumpkin, 2005:148; Frese *et al*, 2014:6). Figure 2-1 describes the dimensions of entrepreneurial orientation.

Figure 2.1: Dimensions of entrepreneurial orientation

Dimension	Short description
Autonomy	Freedom and independent actions
Innovativeness	Engaging in creativity processes
Risk-taking	Venturing into unknown territory
Pro-activeness	Forward looking perspective of an opportunity
Competitive aggressiveness	Competing intensively against rivals

These dimensions add value to the corporate entrepreneurial environment within a business. In the following section each dimension is analysed.

These five dimensions have an effect on the entrepreneurial orientation either independently or interdependently (Miller, 1983; Wiklund & Shepherd, 2005). If a company has an entrepreneurial orientation environment within, it may assist the corporate entrepreneur to be able to be innovative. By being innovative, new ideas are generated, which may lead to new products and services. This in turn may assist the company in performing better, because of new products and services being created.

The five dimensions are further discussed below:

2.4.1 Autonomy

Autonomy refers to an individual or group of individuals that act independently in creating new products or services to enhance business growth, and by seeing their project through to the end (Covin & Slevin, 1991:8). According to Scheepers, Hough and Bloom (2008:67), there exists a positive relationship with relation to autonomy and corporate entrepreneurial behaviour. Companies need to stimulate the entrepreneurial environment within their businesses to ensure and foster growth and innovation. By allowing individuals to act independently on the ideas generated by them, the business will be able to manufacture new products, services and/or processes (Dess & Lumpkin, 2005:149).

According to a study done by Jose *et al.* (2006:53), most ideas generated and implemented are not done and completed by the individual, but eventually by a team that executed the project. Dess and Lumpkin (2005:149) also indicated that the lack of

direction can hamper the team's efforts to act autonomous, but appointing a champion can assist in this regard.

Autonomy is encouraged in businesses by using both top down and bottom up approaches. This assists in creating and fostering an environment in which autonomy can take place (Lotz & Van der Merwe, 2013:18). Being a basis for innovation, autonomy needs to be allowed in the workplace as it assists in the process of creating value for the company (Gurbuz & Aykol, 2009:324).

The literature indicates that there may be a link between autonomy and the perceived performance of a company (Lotz & Van der Merwe, 2013:25). It also indicates that it can be a standalone or a multidimensional link to the perceived success of a business. This has been tested in the explosives business by the researcher.

2.4.2 Innovativeness

According to Dess and Lumpkin (2005:150), innovativeness entails that a business must deviate from its original position to move into new directions through new innovative ventures.

According to Kreiser, Lee, Marino and Tang (2010:149), entrepreneurial firms will utilise product innovation and process innovation to venture into new directions. This ensures that the business regenerates itself through constant innovation. Both of these ventures will be disruptive, as it is a deviation from the norm of the company. As sighted by Lotz and van der Merwe (2013:19) there is a positive relationship between innovativeness and business performance. This relationship has been proven by various studies which indicate a positive relationship between the business's success and the innovativeness of the business (Lotz & Van der Merwe, 2013:26).

It is therefore necessary to investigate whether there is a positive relationship between these two variables in the explosives business environment.

2.4.3 Risk-taking

Risk-taking is the business's ability and willingness to venture into new opportunities provided and identified by the corporate entrepreneurs (Dess & Lumpkin, 2005:152). It is also the uncertainty of positive results of the venture that is being ventured into by the business, which creates risk for the organisation (Lotz & van der Merwe, 2013:19).

According to Cronje *et al.* (2005:43), most researchers agree that there is risk in accepting opportunities identified by the entrepreneur. It is also added that the risk taken needs to be clearly interpreted by the person or persons venturing on the opportunity identified. Risk is the opposite of the expectation of the opportunity venture within the business (Kroon: 1998:212). Kroon (1998:212) goes further to identify different types of risks, which all need to be analysed when the corporate entrepreneur identifies and ventures on an opportunity:

- Pure risks.
- Speculative risks.
- Static risks.
- Dynamic risks.
- Fundamental risks.
- Special risks.

As can be explained from the literature review, risk-taking is inherent to corporate entrepreneurship and taking on new venture opportunities (Kroon, 1998; Cronje *et al.*, 2005). Businesses need to grow continually in order to stay alive and this entails risk-taking (Kroon, 1998:212). This link between risk-taking and growing or performing has been tested in the explosives business for this study.

2.4.4 Pro-activeness

In the business world, it is well known that to have a first mover advantage, is a benefit to the business, in that the competitors have not yet realised that opportunity. The forward anticipation of an opportunity, and acting on the opportunity, is pro-active behaviour, according to Madsen (2007:187). According to Dess and Lumpkin (2005:150), the forward looking and acting on opportunities are necessary for any business wanting to be a business leader. Pro-activeness also relates to all the efforts and acts applied to create an

environment for producing a new product, service and process, in order to be able to gain the first mover advantage (Dess, Lumpkin & Lyon, 2000:1056).

Dess and Lumpkin (2005:151) have also identified that being pro-active and acting on an opportunity, creates a competitive advantage. This ensures that the competitor needs to act and respond to this so as to be able to compete. Lotz and van der Merwe (2013:20) highlight that pro-activeness is one of the dimensions that has indicated a positive relationship with the performance of a business. In this study, this relationship has been tested through the empirical study to establish whether there is any correlation between perceived success and the pro-activeness of the company concerned.

2.4.5 Competitive aggressiveness

Competitive aggressiveness refers to the way and level in which a business competes within the market against their competitors (Lotz & van der Merwe, 2013:20; Dess & Lumpkin, 2005:151). Competitive aggressiveness has been added as one of two dimensions (the other being autonomy) of the original three dimensions measuring entrepreneurial orientation (Dess & Lumpkin, 1996:148). According to Dess and Lumpkin (2001:433), competitive aggressiveness should be a separate concept with their own distinct definitions as indicated in the beginning of the piece.

Businesses create, obtain and leverage resources to be able to compete, and once they have obtained these resources and converted them into products, they will compete for market share and defend their market position as well (Dess & Lumpkin, 2001:433). By competing aggressively, the business can increase its success, as they are constantly in the face of the competing firms. Competitive aggressiveness has been tested to see if there is a link between the perceived success of a company and the way it competes in the market.

2.5 PERCEIVED SUCCESS OF THE BUSINESS

According to Cronje *et al.* (2005:120), an organisation consists of people and resources that have to achieve certain goals or successes. They continue stating that failure to reach these goals and successes may lead to a failed business (Cronje *et al.* 2005:120).

Successful businesses often follow one of either two business strategies (Guilliam *et al.* 2011:287):

- High value strategy or product differentiation strategy.
This strategy is where the business relies on innovation and research so as to promote the superiority of their products to the customers.
- Low cost strategy.
Efficient management of resources so as to obtain the set targets.

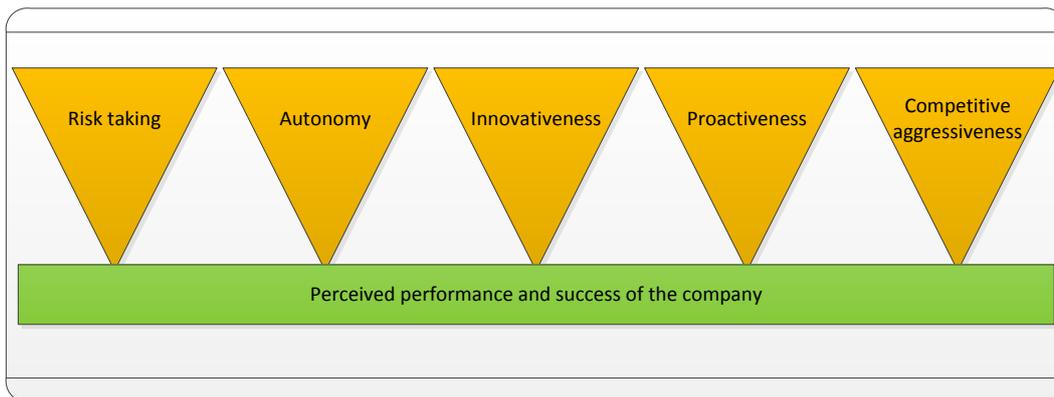
Throughout the literature it is indicated that the performance of the business is the targets that were set for that specific business, and that these may vary because of targets differing. Business targets can be gross profit percentage, sales quantity, net profit, revenue earned, units sold and others (Cronje *et al.* 2005; Guilliam *et al.*, 2011; Brevis *et al.*, 2007). As can be derived from the literature, success is measured by various elements, but business success all boils down to making a profit by implementing resources (Cronje *et al.*, 2005:120).

From this we can derive that perceived success would vary from person to person but that ultimately it will all come back to the business success of turning the resources into a profit.

2.6 THE RELATIONSHIP BETWEEN ENTREPRENEURIAL ORIENTATION AND SUCCESS

The following figure (Figure 2.2) describes what has been tested in the research so as to establish if there is a link between the entrepreneurial orientation variables and the perceived success of a company.

Figure 2.2: Linking entrepreneurial dimensions to perceived success



What is perceived to be success in a business is the first question that needs to be answered. It is necessary to set a performance standard which can be defined as a set of planned and expected performance targets for the business and its employees (Brevis *et al.*, 2007:389). Once these targets are achieved, it can be said that the company is performing according to its planned standards, thus being successful at what it was planned against (Brevis *et al.*, 2007:389).

Throughout the literature, performance has been used as a concept with multiple dimensions (Lotz & van der Merwe, 2013:20; Lumpkin & Dess 1996:137; Rauch, Wiklund, Lumpkin & Frese, 2009:765). It is also believed that multi performance measures must be used rather than single dimensions.

As indicated by Cronje *et al.* (2005:4), a business utilises all its natural resources so as to transform them into products and services for a specific market. The profit that the business makes is its reward for the effort taken. Companies need to experience growth, and to experience it. Business development and improvement should take place within the organisation (Cronje *et al.*, 2005:10).

2.7 SUMMARY

From the literature study it is apparent that a company's strategy involves the corporate entrepreneur who, through the dimensions of corporate entrepreneurial orientation, assists the business with regard to its goals. These dimensions play a role in the business, either independently or interdependently (Miller, 1983; Wiklund & Shepherd, 2005). This indicates that an environment within the business which nurtures the dimensions of corporate entrepreneurial orientation, assists the business to reach its goals and to perform.

It is from this point of view that the study in the explosives marketing and manufacturing industry can indicate if there is a link between businesses's perceived success, from the individual's point of view, and the dimensions of corporate entrepreneurial orientation. Each dimension has been tested by the study to see if there is a statistical relationship between the dimension and the perceived success of a business.

CHAPTER 3

RESULTS OF THE EMPIRICAL STUDY

3.1 INTRODUCTION

An empirical study was conducted to establish if there was a link between the perceived success of the business that was used as the dependent variable, and the entrepreneurial orientation dimensions, which was used as the independent variables. The aim of the research was to establish if there had been statistical proof of relationships between the dependent and the independent variables.

The empirical study was conducted using a questionnaire that was drawn up by Lotz (2009). The questionnaire was loaded onto a software platform, called Survey Monkey, which allowed for respondents to reach the questionnaire through a link sent to them via e-mail. The data was stored in a database and was extracted for the analysis purposes.

3.2 GATHERING OF DATA

The following figure (Figure 3.1) explains the methodology used by the author to gather the information required.

The questionnaire's layout consisted of the following sections and the complete questionnaire can be viewed as Appendix 1:

- **Section A**

Section A consisted of 27 questions, which tested the entrepreneurial orientation of the individual participants with regard to the five dimensions.

Figure 3.1: Empirical study methodology followed

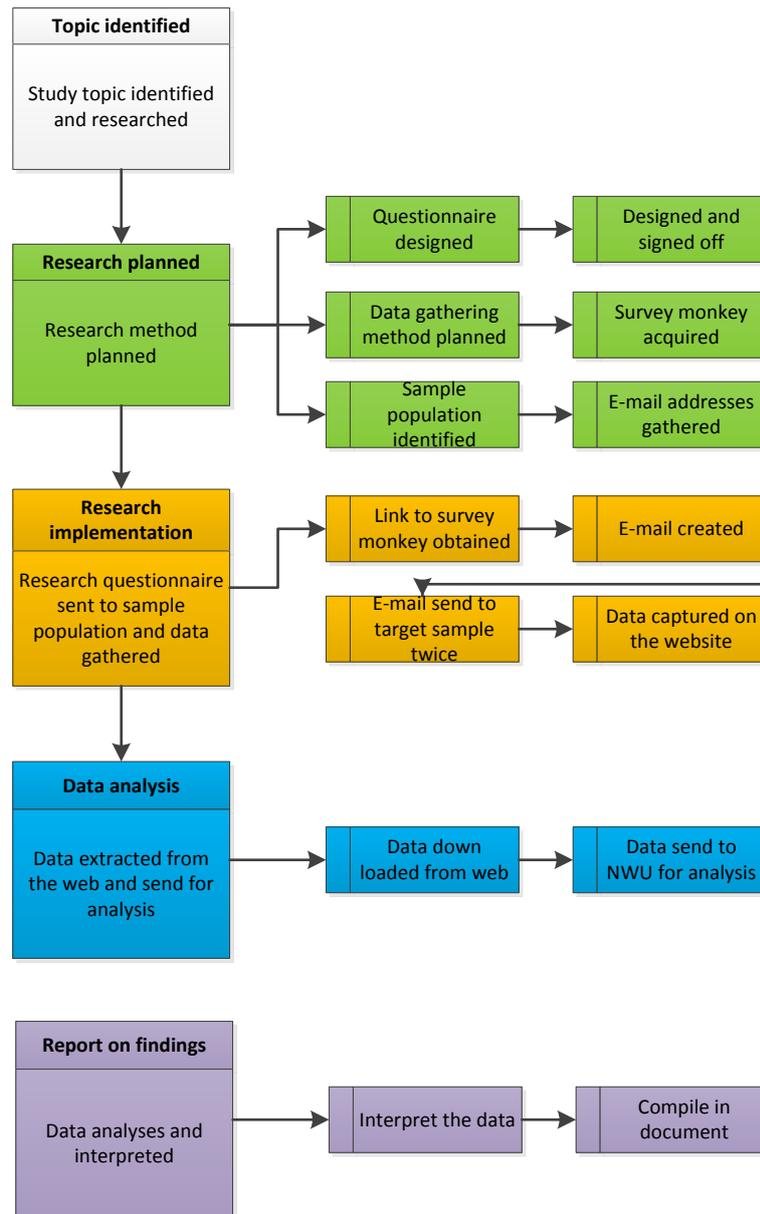


Table 3.1: Entrepreneurial orientation dimensions questions

Questions	Dimension tested
1 to 5	Autonomy
6 to 14	Innovativeness
15 to 19	Risk-taking
20 to 23	Pro-activeness
24 to 27	Competitive aggressiveness

- **Section B**

Section B consisted of 11 questions, which measured the perceived performance of the business as experienced by the individual.

- **Section C**

Section C gathered general data about the individuals completing the questionnaire.

3.3 RESPONSE RATE

The questionnaire was distributed by means of e-mail to 350 individuals. The e-mail contained a link that took the individual to the questionnaire to be completed. The e-mail was sent twice to the respondents, one week apart, because of poor response at the first attempt. The sample represented all levels within the explosives industry within Sasol Nitro Explosives.

From the 350 individuals, only 162 completed the questionnaire, resulting in a 46.285% response rate. From the 162 completed surveys, only 139 questionnaires were adequately completed and could be used for data analysis purposes. Only 39.714% of the original 350 individuals targeted had completed the questionnaire to satisfaction, which could be used for analysis purposes.

3.4 RESULTS OF THE DEMOGRAPHICAL INFORMATION

3.4.1 Gender

The results indicated that 101 respondents were male and 37 female. One of the samples did not contain any information with regard to the individual's gender. The table below (Table 3.2) indicates the figures as derived from the questionnaires.

Table 3.2: Results of Gender statistics

Gender	Male	Female	Missing	Total
Quantity	101	37	1	139
Percentage	72.66%	26.62%	0.72%	100%

As can be seen from the table above, the majority of the respondents were male (72.66%). Females contributed to only 26.62% of the sample.

3.4.2 Age group classification

The table below (Table 3.3) illustrates the statistics of the various age groups that completed the questionnaire. As can be seen, the majority of the individuals (62.6%) that completed the questionnaire were between 30 and 50 years of age.

Table 3.3: Results of Age statistics

Age	Quantity	Percentage
20 to 29	13	9.4
30 to 39	47	33.8
40 to 49	40	28.8
50 to 59	35	25.2
60 plus	4	2.9
Total	139	100

Only four of the individuals were above 60 years and only 13 were between 20 to 30 years old. A very broad base of age groups were included in the statistical information, as the individuals completing the questionnaire ranged from 20 to over 60 years of age.

3.4.3 Race group classification

Table 3.4 describes the various race groups that took part in the survey.

Table 3.4: Results of Race statistics

Race	Quantity	Percentage
Not specified	4	2.9
Black	34	24.5
Coloured	6	4.3
Indian	3	2.2
White	92	66.2
Total	139	100

The majority of the respondents were white (66.2%). A total of 2.9% of the individuals that completed the survey did not complete the race section of the questionnaire. The second highest results obtained were by the black individuals. They accounted for 24.5% of the sample population.

3.4.4 Highest academic qualifications

Table 3.5 describes the type of qualifications held by the individuals who completed the questionnaire.

Table 3.5: Results of highest academic qualifications

Academic qualification	Quantity	Percentage
Lower than matric	1	0.7
Matric	31	22.3
Certificate	24	17.3
Tech Diploma	35	25.2
University degree	22	15.8
Post graduate qualification	26	18.7
Total	139	100

The majority of the individuals who took part in the survey had a post matric qualification. This group consisted of 77% of the sample population. A Technicon diploma made up the largest part of the sample, with 25.2% of the individuals who obtained this type of qualification. Only 0.7% of the sample population had a qualification lower than matric.

3.5 Descriptive statistics of entrepreneurial orientation

The questionnaire that was distributed, intended to capture the individuals' perspective on the entrepreneurial orientation dimensions and that of perceived performance. A Likert scale was used in the questionnaire, and this scale required the respondents to indicate their level of agreement with regard to the different dimensions. The scale is indicated below:

1	2	3	4	5
Strongly disagree	Disagree	Neutral	Agree	Strongly disagree

The individuals had the opportunity to choose whether they agreed with the statement or not. They could indicate their level of agreement as well.

3.5.1 Descriptive statistics of the entrepreneurial orientation dimensions

The descriptive statistics of the five entrepreneurial orientation dimensions are discussed below:

- **Autonomy**

Table 3.6: Results of items measuring Autonomy

Question	N	Minimum	Maximum	Mean	SD
A1	139	1	5	4.17	0.876
A2	139	1	5	3.55	1.058
A3	139	1	5	2.64	1.192
A4	138	1	5	3.68	0.904
A5	139	1	5	3.19	1.154
Combined	139	1.4	5	3.445	0.756

As can be seen from the data analysis above, (Table 3.6) on autonomy, the individuals responded positively with an average mean of $\bar{x} = 3.445$. The only question that had a result below Neutral ($\bar{x} = 3.0$), was an indirect question concerning whether employees were allowed to make decisions without going through justification systems for approval. This question had a mean result of $\bar{x} = 2.64$.

The highest mean came from Question 1, which asked whether the individuals had enough autonomy in their own jobs. This result came in very high, with a mean of $\bar{x} = 4.17$. This indicated that there was an environment within the business that allowed for individuals to be able to act autonomously.

From the above data the author derived that the majority of the respondents indicated that they were more positive with regard to autonomy in their working environments.

- **Innovativeness**

Table 3.7: Results of items measuring innovativeness

Question	N	Minimum	Maximum	Mean	Std Deviation
A6	138	1	5	3.33	1.056
A7	138	1	5	3.44	0.989
A8	138	1	5	3.65	0.956
A9	137	1	5	3.92	0.955
A10	137	1	5	3.52	1.008
A11	135	1	5	3.13	1.035
A12	139	2	5	3.85	0.825
A13	135	1	5	3.65	0.957
A14	139	1	5	3.33	0.988
Combined	139	1.67	5	3.53	0.720

The data in the table above (Table 3.7) indicated that most of the respondents' responded above neutral ($\bar{x} = 3.0$) to the questions of innovativeness. A combined mean of $\bar{x} = 3.53$ was achieved. All of the questions had a mean above $\bar{x} = 3.0$ which indicate that the majority of the respondents experienced some sort of innovativeness within the business

functions of the organisation. This is very positive, as innovation is required for sustainability within a business.

The highest mean score came from Question A9 which achieved a mean of $\bar{x} = 3.92$. This question required the respondents to comment on the business pursuing new opportunities on a continual basis. As this figure was quite high, it can be concluded that the explosives marketing and manufacturing business is utilizing innovation to venture in on new opportunities.

- **Risk-taking**

Table 3.8: Results of items measuring Risk-taking

Question	N	Minimum	Maximum	Mean	Std Deviation
A15	139	1	5	3.29	1.023
A16	138	1	5	3.02	1.050
A17	136	1	5	3.35	0.915
A18	136	1	5	2.84	1.070
A19	136	1	5	2.60	1.043
Combined	139	1	5	3.02	0.754

Risk-taking indicated a lower combined mean than that of the other entrepreneurial orientation dimensions at $\bar{x} = 3.02$ (Table 3.8). This indicated that the individuals were almost equally risk averse than being able to take risks, or being allowed to take risks within the organisation. Two of the questions resulted in a below neutral ($\bar{x} = 3.0$) mean being calculated. The first question was Question 18, which wanted to know if the individual was encouraged to take risks concerning new ideas. This question achieved a mean of $\bar{x} = 2.84$.

The other question required the individual to indicate if a risk taker was considered a positive attribute within the business. This question achieved a mean of $\bar{x} = 2.60$, which was the lowest for risk-taking.

The almost neutral mean of $\bar{x} = 3.01$ indicated that the individuals in the explosives marketing and manufacturing business, were either not general risk takers, or that the environment within the business did not allow for risk-taking activities to take place.

- **Pro-activeness**

Table 3.9: Results of items measuring Pro-activeness

Question	N	Minimum	Maximum	Mean	Std Deviation
A20	138	1	5	3.10	1.006
A21	136	1	5	3.34	0.929
A22	137	1	5	3.51	0.963
A23	138	1	5	3.79	0.892
Combined	139	1.25	5	3.44	0.767

The questions related to pro-activeness indicated an above neutral combined mean of $\bar{x} = 3.44$ (Table 3.9). All of the questions achieved a mean of above $\bar{x} = 3.0$. The question that indicated the highest mean was Question A23, which required the respondents to evaluate their businesses with regard to monitoring future trends, and the identification of customer needs. This question achieved a mean of $\bar{x} = 3.79$.

This indicated that the individuals who completed the survey felt that the business was very customer focused and strived towards identifying customer needs. It could be derived from the data analysed that the majority of the respondents saw the explosives business as being pro-active in how the business approach their customers' needs.

- **Competitive aggressiveness**

Table 3.10: Results of items measuring Competitive aggressiveness

Question	N	Minimum	Maximum	Mean	Std Deviation
A24	136	1	5	3.32	0.900
A25	138	1	5	3.67	0.874
A26	138	1	5	3.48	0.881
A27	137	1	5	3.66	0.816
Combined	139	1.5	5	3.53	0.632

Table 3.10 above indicated that the individuals all responded above neutral to the competitive aggressiveness of the business, with a mean of $\bar{x} = 3.53$. There was no question below the neutral ($\bar{x} = 3.0$), indicating that the individuals were positive towards this dimension. All of the questions scored more or less the same (range of 0.35) mean, indicating uniformity within the dimension.

The mean score above neutral indicated that the individuals experienced the business as competing aggressively in the market towards their competitors.

3.5.2 Descriptive statistics performance factors

Below, the perceived performance factors are discussed:

- **Business growth**

Table 3.11: Results of the items measuring Business growth

Question	N	Minimum	Maximum	Mean	Std Deviation
B1	139	1	5	3.86	0.910
B2	139	1	5	3.70	0.975
B3	137	1	5	3.80	0.925
B4	139	1	5	3.71	0.888
Combined	139	1	5	3.76	0.812

The table above (Table 3.11) tested the perceived performance of the business with regard to growth. The combined mean of the four questions achieved, was $\bar{x} = 3.76$. This indicated that most of the respondents viewed the business as successful with regard to perceived growth performance.

The majority of the respondents saw an increase in market share, profit, turnover and improved competitive position within the business. All four of the questions had means ranging between $\bar{x} = 3.70$ to $\bar{x} = 3.86$ (range of 0.16), indicating uniformity within the concept being tested.

- **Business development and improvement**

Table 3.12: Results of the items Business development and improvement

Question	N	Minimum	Maximum	Mean	Std Deviation
B5	138	1	5	3.72	0.896
B6	138	2	5	3.66	0.850
B7	138	1	5	3.01	1.137
B8	136	1	5	3.50	0.981
B9	139	1	5	2.89	1.019
B10	137	2	5	3.58	0.872
B11	138	1	5	3.09	0.973
Combined	139	1.57	5	3.34	0.713

Table 3.12 above measured the perceived business development and improvement of the individuals, as experienced in the business environment. A combined mean value of $\bar{x} = 3.34$ were achieved, which is higher than that of neutral ($\bar{x} = 3.0$). This indicated that most of the respondents perceived their businesses to have gained some level of improvement and development within the business operation.

The only question which had a mean lower than $\bar{x} = 3.0$, was question B9, which required the respondents to give their view on the morale of the employees and if it had improved during the past few years. The mean was below neutral at $\bar{x} = 2.89$. Morale of employees is an important issue that have to be dealt with by the management of the company.

3.5.3 Summary of Descriptive statistics - Entrepreneurial dimensions and perceived performance factors

The following summary captured all the factors that were discussed above.

Table 3.13: Summary of results measuring entrepreneurial orientation

Dimension	Mean (\bar{x})
Autonomy	3.445
Innovativeness	3.530
Risk-taking	3.019
Pro-activeness	3.435
Competitive aggressiveness	3.529
Growth	3.766
Business development and improvement	3.349

As can be observed from Table 3.13, all of the dimensions and the perceived performance factors had a mean result larger than neutral ($\bar{x} = 3.0$). It was also derived from the above statistical data that the individuals who took part in the survey, were more risk averse, as this dimension had the lowest mean at $\bar{x} = 3.019$. This could also be an indication that the business environment in which they operate, did not allow or give them the freedom to take risks.

The perceived performance factor growth indicated the highest mean at $\bar{x} = 3.766$, indicating that the individuals had experienced growth in the business during the last few years. Most of the individuals perceived that the company was performing above the norm. Four of the entrepreneurial orientation dimensions had means ranging from $\bar{x} = 3.435$ to $\bar{x} = 4.530$. This was very close to one another and no distinction could be made amongst these dimensions.

3.6 Reliability of the statistical data gathered

For the reliability of the data that was statistically analysed to be verified, the Cronbach Alpha coefficients were used. Reynaldo and Santos (1999) investigated the use of the

Cronbach Alpha coefficients to determine the internal consistency of the questionnaire's data gathered to gauge its reliability. Their research found that it was indeed a reliable measure to use to determine the validity of a data range.

Values of above 0.7 should be seen as reliable statistical data and further interpreted to come to conclusions with regard to the data analysed, as it is seen as reliable. The table below indicates the Cronbach Alpha coefficients of the study conducted.

Table 3.14: Cronbach Alpha coefficients

Dimension	Valid (N)	Excluded (N)	Total (N)	Cronbach's Alpha
Autonomy	138	1	139	0.772
Innovativeness	127	12	139	0.887
Risk-taking	131	8	139	0.801
Pro-activeness	132	7	139	0.825
Competitive aggressiveness	133	6	139	0.720
Growth	137	2	139	0.902
Improvement and development	130	9	139	0.863

The Cronbach Alpha coefficients of all the dimensions achieved a value above 0.7. This indicated that the data that was statistically analysed, could be used as a reliable data source to measure the dimensions of entrepreneurial orientation and perceived success. The lowest Cronbach Alpha measured was that of competitive aggressiveness, which measured at 0.720, and was still considered to be a reliable data source.

The highest Cronbach Alpha that was measured was that of growth within the business, which measured at 0.902.

3.7 Linking the dimensions of entrepreneurial orientation to perceived success

The aim of the study was to investigate whether there was any relationship between the five entrepreneurial orientation dimensions and the perceived success of the participating organisation. Statistical regression was used to determine if there was a statistical significant relationship between the dimensions (independent variables) and the perceived success (dependent variables). If the value of the regression is less than $p = 0.05$, then it may be said that there is a significant relationship between the independent variables and the dependable variable.

The table below indicates the regression with regard to the perceived growth of the organisation.

Table 3.15: The impact of entrepreneurial orientation on Business growth

Model	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	Std Error	Beta		
Autonomy	0.192	0.096	0.179	2.000	0.048**
Innovativeness	0.374	0.129	0.332	2.906	0.004**
Risk-taking	-0.029	0.094	-0.027	-0.313	0.755
Pro-activeness	0.170	0.120	0.160	1.411	0.161
Competitive aggressiveness	-0.001	0.110	-0.001	-0.006	0.995

$R^2 = 0.327$; ** $p < 0.05$

The table above indicated that 32.7% of the variation in **Business growth** was explained by the five dimensions of an entrepreneurial orientation. There was however two dimensions that indicated a statistical significant relationship between the independent variables and the dependable variable.

Autonomy and **Innovativeness** scored $p = 0.048$ and $p = 0.004$ respectively. These values were below $p = 0.05$, it could thus be inferred that there was a definitive significant

relationship between the two dimensions and the perceived success of the business, relating to business growth. This relationship indicated that the environment within the explosives manufacturing and marketing industry of the business, allowed for autonomy and innovativeness to be positive influencers on the success of business growth.

The table below indicates the regression analysis regarding to the perceived Business development and improvement

Table 3.16: The impact of entrepreneurial orientation on business development and improvement

Model	Unstandardized coefficients		Standardized coefficients	t	Sig
	B	Std Error	Beta		
Autonomy	0.303	0.073	0.321	4.164	0.000**
Innovativeness	0.152	0.097	0.154	1.562	0.121
Risk-taking	0.069	0.071	0.073	0.976	0.331
Pro-activeness	0.254	0.091	0.273	2.786	0.006**
Competitive aggressiveness	0.062	0.083	0.055	0.746	0.457

$R^2 = 0.502$; ** $p < 0.05$

The table above indicated that 50.2% of the variation in **Business development and improvement** was explained by the five dimensions of corporate entrepreneurial orientation. There were however two dimensions that indicated a statistically significant relationship between the independent variables and the dependable variables. **Autonomy** and **Pro-activeness** scored $p = 0.000$ and $p = 0.006$ respectively. These values were below $p = 0.05$ and thus it could be deduced that there was a definitive significant relationship between these and the perceived success of the business with regard to the improvement and development of the business.

The explosives manufacturing and marketing business environment allowed for autonomy and pro-activeness to take place. This was perceived by the majority of the individuals who took part in the survey to have a positive and real effect on the perceived performance of the business with reference to improvement and development.

3.8 Summary

The empirical study conducted proved to be a reliable source of information, as indicated by the analysed statistical data. All of the Cronbach Alpha's of the constructs were above 0.7, indicating the reliability of the data. Reliability of the data was a very important factor as this indicated that statements regarding the data could be made and that the data could be interpreted with confidence.

The descriptive statistics indicated that all of the five entrepreneurial orientation dimensions had an average mean of above $\bar{x} = 3.0$, which indicated that the sample individuals were more positive regarding the five dimensions in their current business environment, than negative. This indicated that there was a high level of entrepreneurial orientation within the explosives marketing and manufacturing business.

Linking the five entrepreneurial dimensions with perceived success proved to be more difficult. Only three of the dimensions could be linked to the perceived success factors.

These dimensions were:

- Autonomy.
- Innovativeness.

These two elements were linked to the growth part of perceived performance, where they indicated a significant relationship between them and the growth:

- Autonomy.
- Pro-activeness.

These two dimensions were linked to the business improvement part of the perceived performance, where they indicated a significant relationship between them and the business improvement part pertaining to perceived performance.

It can be concurred that if these three dimensions were implemented and embraced by the business, it would have a positive influence on the success of the business as perceived by the individuals working in the explosives and marketing environment.

CHAPTER 4

CONCLUSIONS AND RECOMMENDATIONS

4.1 Introduction

Entrepreneurial orientation is still an unexplored subject in South Africa. This chapter explains the empirical study further and makes relevant suggestions to the business involved. As indicated during the literature research, there is a definitive link between corporate entrepreneurial orientation dimensions and the perceived success of the individuals working in the organisations. The study was conducted from this view point and the results of the study indicated relevant statistical relationships.

A current explosives marketing and manufacturing business (Sasol Nitro) within South Africa, was used to gain insight into the entrepreneurial orientation environment within the business. This entrepreneurial orientation business environment indicated that there was a perception from the individuals sampled that an environment existed within the company that allowed for the dimensions of entrepreneurial orientation to have an effect on the performance of the business performance. Advice for further studies has also been included in this chapter.

4.2 Conclusions

The following conclusions were made regarding statistics of the questionnaire's analysed.

4.2.1 Demographic information

From the results of the survey, the following conclusions could be derived:

- The majority of the respondents were male and accounted for 72.66% of the individuals used in the survey.
- The age group that represented the most individuals, was the group between 30 to 40 years of age. They were 33.8% in total.
- The age group between 30 to 60 years represented 87.8% of the individuals who completed the questionnaires.

- The majority of the respondents were white (66.2%) according to the South African race classification.
- The respondents indicated that 77% had a post matric qualification.

Based on these results, it seemed that most of the respondents who participated in this study, were white males between the ages of 30 to 40 years old with a post matric qualification.

4.2.2 Entrepreneurial orientation dimensions

The entrepreneurial orientation dimensions yielded results that indicated, that the mean score of the perceptions of the respondents indicated that they believed that their business environment allowed for them to be entrepreneurial, relating to the entrepreneurial orientation dimensions. This had been summarised as follows:

- Autonomy achieved a combined mean of $\bar{x} = 3.445$. The only part of the autonomy environment that indicated a mean below $\bar{x} = 3.0$, was that of the justification process, which had to be referred to management so as to approve the decision made by the individual.
- Innovativeness achieved a combined mean of $\bar{x} = 3.53$. All the items assessed to measure the dimension, yielded means above $\bar{x} = 3.0$.
- Risk-taking achieved a combined mean of $\bar{x} = 3.02$. This was the dimension that yielded the lowest score. From this it can be concluded that the environment does not allow for risky decisions to be made.
- Pro-activeness achieved a combined mean of $\bar{x} = 3.44$. All the areas tested yielded a result above the mean of $\bar{x} = 3.0$. The environment within the business thus allowed for individuals to be pro-active in executing their duties.
- Competitive aggressiveness achieved a combined mean of $\bar{x} = 3.53$. All the dimensions tested indicated a mean higher than $\bar{x} = 3.0$. The company thus could be said to have an environment in which individuals are allowed to use their abilities to compete with competitors.

The means of all the entrepreneurial orientation dimensions had scores above $\bar{x} = 3.0$. This was an indication that the business environment within Sasol Nitro explosives allows for the employees to be able to act entrepreneurially in their day to day activities. There

were however some areas that had to be addressed, as they indicated a low mean score, below $\bar{x} = 3.0$. The one area is that of autonomy where the individuals indicated that they had to go through a lengthy approval process in order to approve decisions made by them. This area therefore needs to be investigated before actions are taken as to improve the decision making process. There might be business safety reasons for the current processes.

4.2.3 Conclusion on perceived success factors

The perceived success of the business was measured by two factors, namely **Business growth** and **Business development and improvement**. These two areas achieved the following results:

- Business growth indicated a mean of $\bar{x} = 3.766$. This indicated that the majority of the individuals that completed the questionnaire perceived the business to have grown during the past two to three years.
- Business development and improvement indicated a mean of $\bar{x} = 3.499$. The individuals who completed the survey indicated that the business had improved and developed during the past two to three years.

The only negative point raised by the individuals completing the survey was that they perceived the morale of the business to be negative. This point had a mean of $\bar{x} = 2.89$, which was close to the average mean of $\bar{x} = 3.0$. This should however not be left unattended - this area should be investigated before it affects other areas of the business.

4.2.4 Linking entrepreneurial orientation dimensions to perceived success

As discussed in the literature study, there are five dimensions of entrepreneurial orientation, namely:

- Autonomy.
- Innovativeness.
- Risk-taking.
- Competitive aggressiveness.
- Pro-activeness.

These dimensions have been linked, through the literature, to the perceived success of organisations. Although not all of them show significant relationships, each time a study is conducted, there are instances where significant relationships are proven.

In the empirical study, a link between the dimensions and the perceived success had been established. It was indicated that pertaining to **Business growth**, 32.7% of the variation in the perceived success had been explained by these five dimensions. Only two dimensions in this instance indicated a significant relationship with business growth as part of perceived success. These two dimensions were:

- Autonomy $p = 0.048$.
- Innovativeness $p = 0.004$.

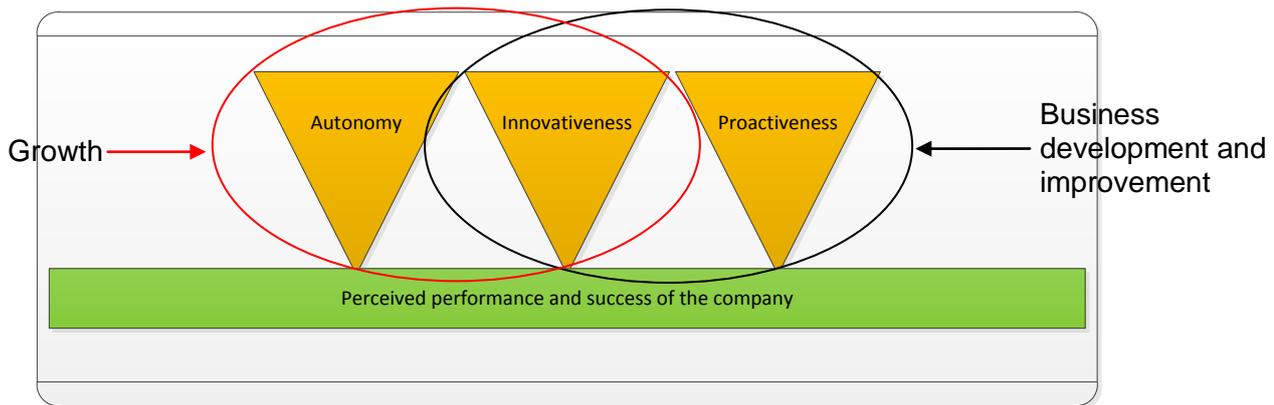
Both of these dimensions were considered to be a factor in the company's performance. The environment within the explosives marketing and manufacturing business, allowed for the employees to be autonomous and innovative in most cases with the result being a company that experience growth. This indicated that, if the level of autonomy and innovativeness increased, so should the performance of the company regarding growth.

The other perceived performance dimension of **Business development and improvement** had the following result: the perceived performance with regard to **Business development and improvement** was 50.2%, explained by the entrepreneurial orientation dimensions. Only two dimensions yielded a significant relationship with this dimension:

- Autonomy @ 0.000.
- Pro-activeness @ 0.006.

From these results it could be derived that there was a definitive link between three of the entrepreneurial orientation dimensions and the perceived success of the explosives marketing and manufacturing business. These three dimensions are indicated in the diagram below:

Figure 4.1: Linked entrepreneurial orientation dimensions



Two of the dimensions did not indicate a significant relationship with the perceived success of the business. They were the dimensions of risk-taking and competitive aggressiveness.

4.3 Recommendations

From these results, the following recommendations were made to the organisation to be able to leverage the benefits that entrepreneurial orientation dimensions could bring to the company. There is currently an environment within the company which allows for individuals to be entrepreneurial. It is just not known whether the individuals fully understand the role that corporate entrepreneurship plays within the business environment.

The corporate entrepreneurial environment ensures that new innovative ways of operating day to day activities are found and implemented, in order to enhance the business's performance. It is recommended that the business embraces the environment within, and start monitoring the progress. New idea generating forums should be established to be able to leverage the ideas of the corporate entrepreneurs.

Corporate entrepreneurship should be one of the pillars that build the business going forward. It is imperative to redesign the company's offering on a regular basis so as to be able to keep up with its competitors. The following recommendations were made to Sasol Nitro's management:

4.3.1 Management's point of view and the new strategy

The management team's point of view on the topic of fostering an entrepreneurial orientation and the link to performance should be explored. This could be done by importing a specialist consultant in the field of entrepreneurial orientation. This individual could assist in formulating the current point of view of the management team on the subject.

The reason why the management team is targeted first, is because all business functions begin and end with the management team. They need to understand the dynamics of the topic and needs to be able to lead by example. The consultant will brief the management team on the topic of corporate entrepreneurial orientation and the link it has to the success of the business. The results of the study conducted, indicated that there are definitive links between perceived performance and the entrepreneurial orientation dimension. These results need to be incorporated in the consultant's findings.

Management should make a decision relating to what route they want to follow regarding the corporate entrepreneurial dimensions and how they would implement it for the rest of the employees within the company. The following recommendations were made to management to assist them in their decision making process:

- Include corporate entrepreneurship in the strategy of the business.
- Train and make the employees aware of the corporate entrepreneurship topic and its link to business performance.
- Establish a project team to implement the new tools and to evaluate them on a regular basis.
- Provide feedback to all relevant stakeholders on the process.

4.3.1.1 Include corporate entrepreneurship in the strategy of the business

By including the topic of corporate entrepreneurship in the strategy of the business, it will allow for the structuring and implementation process to be implemented as part of the company's real strategy. This is important, since, if it is not part of the company's strategy, it will not be seen as an important aspect of the running and improvement of the business.

By including it into the strategy, a proper strategic implementation plan will have to be drawn up and approved by management. This is very important, as it will guide the management team in implementing the corporate entrepreneurial part of the strategy. The proposed strategy that can be recommended from the study, will follow the ensuing project path:

1. Evaluate management's point of view on corporate entrepreneurship.
 - An outside specialist consultant will provide the service of evaluating management's point of view.
2. The consultant should provide guidelines on the way forward so as to create a corporate entrepreneurial strategy and environment within the business.
 - The consultant will also, based on his assessment and the outcome of this study, make suitable suggestions for how to implement the strategy correctly.
3. Management should establish a project team after deciding the way forward.
 - They need to decide the way forward after consulting with the specialist consultant.
 - A project team needs to be established, to plan and execute the projects.
4. A project plan to be drawn up by the project team.
 - The project team needs to draw up the project plan. This project plan has to cater for creating awareness, training, tool generating forums, feedback communication lines and measurement criteria.
5. The project plan needs to be approved by management for implementation.
 - Management needs to approve the project plan and if changes are necessary, it should be recommended and applied to the plan.
6. Project plan implementation.
 - The project team will implement the project plan as drawn up by them.
 - Delivery dates are very important to be able to reach milestones set in the plan.
7. Evaluation of project.
 - Evaluation of the implementation needs to be done to be able to see if the plan is functioning as required.

4.3.1.2 Train and stimulate employees' awareness on the topic of corporate entrepreneurship and its link to business performance

After the project plan is approved by management, the employees may need to be made aware of the corporate entrepreneurial dimensions and the links it have with business performance. This can be done by management in the form of a formal meeting. During this meeting, the topic needs to be explained to the individuals, including the way it will be implemented.

After the initial meeting, training on the topic will be done by an external specialist consultant who is able to explain and train the individuals of the business correctly. Training is very important as this will enable the individuals to fully understand their part in the total process and that they are able to play a significant role in the future performance of the business.

4.3.1.3 Establish a project team to create and implement the new tools and to evaluate them on a regular basis.

It is recommended that a project team be established to draw up the total project plan. They will be responsible for designing the project plan and for the implementation and evaluation thereof.

The following aspects are recommended for the project team to take into account:

- Training needs to be provided to the individuals within the company. This includes management and subordinates.
- Tools must be generated to assist the employees, i.e.:
 - Forums need to be created to allow the employees to generate their ideas with regard to new products, product improvements, service improvements, etc.
 - Idea generating boxes can be distributed in accessible areas for the employees to submit their ideas.
 - Web based communication channels must be created to allow for individuals to see their ideas and to be able to monitor the progress.

- Management processes should be re-evaluated to establish if they contribute to the entrepreneurial orientation dimensions.
- Evaluation of corporate entrepreneurial ideas and processes:
 - All ideas should be evaluated and investigated. Potential ideas should be investigated and implemented if found beneficial.
 - Management process findings should be evaluated and where shortcomings are found, they need to be realigned to meet the strategic objectives.

The above recommendations should be implemented and monitored on a continual basis to allow for the strategy to be implemented correctly.

4.3.1.4 Feedback

Feedback on ideas generated by individuals in the business is essential. This ensures that the system is seen as a working system and that no idea generated is taken for granted. This should be done anonymously and it should be done irrespective of whether the generated idea would be taken further, or if the idea was rejected for further investigation.

The ideas of the individuals that were investigated and implemented as new products or services, should be evaluated and feedback given on progress made. The benefits of the new product or service should be quantified and this needs to be communicated to the employees.

4.4 Critical evaluation of objectives

Primary objective

The primary objective of the study is to assess the current level of entrepreneurial orientation within the explosives manufacturing and marketing business with relation to perceived performance.

This objective was achieved by assessing the current level of entrepreneurial orientation within the explosives marketing and manufacturing business of Sasol Nitro explosives. The

empirical study done by means of issuing questionnaires, were analysed and the statistical results were described in Section 3 of the dissertation. The literature study was also conducted and assisted with achieving the primary objective. The literature study can be found in Section 2 of the document.

Secondary objectives

To achieve the primary objective of the study, the following secondary objectives were required:

- **A Literature study need to be conducted with regard to corporate entrepreneurial orientation and the relationship between entrepreneurial orientation and perceived performance. The literature study will be required to assist with:**
 - **Defining corporate entrepreneurship and entrepreneurial orientation.**

This objective was achieved by conducting research in the field of entrepreneurial orientation and corporate entrepreneurship. This part was concluded in Sections 2.2.3 and 2.3 of this paper.
 - **To gain insight into the entrepreneurial environment.**

Insight was gained into the entrepreneurial environment by conducting a study on past research done on the subject. The results of this research are displayed in Section 2.2.2 of this document.
 - **Gaining insight into the various components of entrepreneurial orientation.**

Insight into the various components of entrepreneurial orientation was gained through the literature review. A literature review was conducted and the five dimensions of entrepreneurial orientation were discussed. This can be found in Section 2.4 of this paper.
 - **Exploring previous studies conducted on the topic with relation to entrepreneurial orientation and the relationship between entrepreneurial orientation and perceived company performance.**

The link between perceived performance and the entrepreneurial orientation dimensions was achieved by conducting research on past research done in the field of this study. The results of this research could be found as discussed in Sections 2.5 and 2.6 of this study. Various links between perceived performance and the dimensions of the entrepreneurial orientation were found.

- An empirical study was also conducted to:
 - **Assess the current entrepreneurial orientation environment within the explosives company with relation to the business's perceived performance.**

The empirical study was conducted by means of utilizing a questionnaire that was completed by individuals within the business environment. The data was analysed by the North-West University's Statistical Consultation Services and was found to be valid and relevant to the study. This objective was achieved in Section 3.5 of this paper.

- **Assess the dependent and independent variables.**

A statistical relationship was found between three of the entrepreneurial orientation dimensions and the perceived success of the business. This objective was achieved in Sections 3.6 and 3.7 of this document.
- **Gain insight into geographical information of the study sample.**

This section was achieved through the empirical study and could be found in Section 3.4 of this study. It was subdivided into four categories, namely age, gender, race and qualifications.

- Draw conclusions on the link between entrepreneurial orientation and business performance with regard to the following:
 - **Can a positive relation between the dependent and independent variables be established?**

A positive relationship was established though the analysis of the statistical data. This relationship is displayed and discussed in Sections 3.6 and 3.7 of this paper.

- **The current status of the entrepreneurial orientation environment.**

The current status of the entrepreneurial orientation environment within the explosives marketing and manufacturing business was established through the empirical study. This was explained in total and in Section 3 of this dissertation which assessed the current entrepreneurial orientation environment.

- **Give certain recommendations with regard to the results to the explosives manufacturer.**

Recommendations with pertaining to the results of the literature research and the empirical study conducted were made in Section 4 of this study. These recommendations will assist management in nurturing an entrepreneurial environment within the business that will enhance the success and performance of the business.

4.5 Limitations and further research

The study was conducted in the explosives manufacturing and marketing environment within South Africa. The study only targeted one company namely Sasol Nitro Explosives Division. All the results only pertain to the company that was studied and it does not relate to the complete market.

It is therefore possible to further the study by applying the same technique in studying the other explosives manufacturing and marketing companies within South Africa. By doing that, information would be gained about the total market within South Africa.

This should give valuable input in the field of entrepreneurial orientation. The results of the total market can then be compared to similar studies in other countries to determine if there are any similarities within the markets with regard to the entrepreneurial orientation dimensions and the perceived success of the international explosives marketing and manufacturing industries.

4.6 Summary

The research done in this paper indicated that there are certain significant statistical relationships between some of the entrepreneurial orientation dimensions and the perceived success of the individuals working in the explosives manufacturing and marketing industry. The dimensions that indicated this relationship (autonomy, innovativeness and pro-activeness) should be used by Sasol Nitro to leverage the advantage that it can bring to the performance of the company.

Research in this field should continue to better understand the link between the perceived success and the entrepreneurial orientation dimensions. This will enable the market to have certain set rules to apply in order to enhance their corporate entrepreneurial environment within.

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APPENDICES

Appendix 1: Questionnaire

Dear Respondent

This questionnaire seeks to investigate if there is a relationship between company performance and Entrepreneurial orientation. Entrepreneurial orientation relates to the strategic processes taking place, to be able to use innovation within a business, to formulate new corporate ventures that will ensure continuous growth.

There are five dimensions identified within the corporate Entrepreneurial orientation environment. They are the following:

- **Autonomy** - the freedom of personnel to implement own ideas in the business processes.
- **Innovativeness** – reflects the business tendency to act on new ideas and innovations
- **Pro-activeness** – acting on future wants.
- **Competitive aggressiveness** – intensity to challenge competitors
- **Risk-taking** – Risking resources to be able to grow or gain profits

Each of the above will be investigated in the questionnaire. The study will only be done for one company and because of confidentiality clauses the name of the company can not be mentioned

Please complete every question / statement to ensure the validity and reliability of the study.

4.6.1.1.1

4.6.1.1.2 GENERAL INSTRUCTIONS

Virtually all questions should be answered by ticking (X) or **highlighting** the relevant block.

Use the following key to indicate your preference:

SCALE	TERM USED
1	Strongly disagree
2	Disagree
3	Neither agree nor disagree (Neutral)
4	Agree
5	Strongly agree

Please select the number which best describes your opinion about a specific question or statement. In the example beneath, the respondent agreed to the statement listed.

I believe that Small, micro and medium sized enterprises in South Africa can be successful	1	2	3	4	5
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SECTION A

The following statements concern your attitude towards the entrepreneurial orientation of the business.

Please rate the extent to which you agree or disagree with the following statements by making an "X" over the appropriate number on the 1 to 5 point scale next to the statement.

1 = Strongly disagree	2 = Disagree	3 = Neutral	4 = Agree	5 = Strongly agree
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	STATEMENT	SCALE				
		1	2	3	4	5
A1	I have enough autonomy in my job without continual supervision to do my work.	1	2	3	4	5
A2	Our business allows me to be creative and try different methods to do my job.	1	2	3	4	5
A3	Employees in our business are allowed to make decisions without going through elaborate justification and approval procedures.	1	2	3	4	5
A4	Employees in our business are encouraged to manage their own work and have flexibility to resolve problems.	1	2	3	4	5
A5	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
A6	Our business regularly introduces new services/products/processes.	1	2	3	4	5
A7	Our business places a strong emphasis on new and innovative products/ services/processes.	1	2	3	4	5
A8	Our business has increased the number of services/products offered during the past two years.	1	2	3	4	5
A9	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 improvement in products/service delivery/processes.	1	2	3	4	5
A13	Our business has a widely held belief that innovation is an absolute necessity for the business' future.	1	2	3	4	5
A14	Our leaders seek to maximise value from opportunities without constraint 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 maximise the probability of exploiting opportunities.	1	2	3	4	5

Please rate the extent to which you agree or disagree with the following statements by making an "X" over the appropriate number on the 1 to 5 point scale next to the statement.

1 = <i>Strongly disagree</i>	2 = <i>Disagree</i>	3 = <i>Neutral</i>	4 = <i>Agree</i>	5 = <i>Strongly agree</i>
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A16	In general, our business has a strong inclination towards high-risk projects.	1	2	3	4	5
A17	Owing to the environment, our business believes that bold, wide-ranging acts are necessary to achieve the business' 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 that 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

SECTION B

The following statements concern your attitude towards the success of the business.

Please rate the extent to which you agree or disagree with the following statements by making an "X" over the appropriate number on the 1 to 5 point scale next to the statement.

1 = <i>Strongly disagree</i>	2 = <i>Disagree</i>	3 = <i>Neutral</i>	4 = <i>Agree</i>	5 = <i>Strongly agree</i>
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	STATEMENT	SCALE				
		1	2	3	4	5
B1	Our business has experienced growth in turnover over the past few years.	1	2	3	4	5
B2	Our business has experienced growth in profit over the past few years.	1	2	3	4	5
B3	Our business has experienced growth in market share over the past few years.	1	2	3	4	5
B4	The competitive position of our business has improved over the past few years.	1	2	3	4	5
B5	The effectiveness (doing the right things) of our business has improved over the past few years.	1	2	3	4	5
B6	The efficiency (doing things right) of our business has improved over the past few years.	1	2	3	4	5
B7	In our business, employees are viewed as the most valuable asset of the business.	1	2	3	4	5
B8	Our employees are highly committed to our business.	1	2	3	4	5
B9	The moral (job satisfaction) of our employees 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

SECTION C: BIOGRAPHICAL INFORMATION

The following information is needed to help us with the statistical analysis of the data for comparisons among different interest groups. We appreciate your help in providing this important information.

Mark the applicable block with a cross (X). Complete the applicable information.

C1	Indicate your age group.	≤ 29	30 - 39	40 - 49	50 - 59	60+
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C2	Indicate your gender?	Male	Female
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C3	Indicate your race group classification.	Black	White	Coloured	Indian
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C4	Indicate your highest academic qualification.				
	Lower than matric				
	Matric				
	Certificate				
	Diploma (Technical College or Technicon)				
	University degree				
	Post graduate degree				

THANK YOU FOR YOUR TIME.