CORPORATE ENTREPRENEURSHIP ORIENTATION IN BOTSWANA: Pursuing Innovating opportunities

By

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University of Pretoria

DECLARATION

This declaration serves to state that the work contained in the dissertation entitled:

CORPORATE ENTREPRENEURSHIP ORIENTATION IN BOTSWANA:
Pursuing Innovating opportunities

is my own original work, and that all the sources used or quoted have been indicated and acknowledged by means of complete reference. The dissertation has not previously been submitted by me for a degree at another university. I further declare that I did not allow and will not allow anyone to copy my work with the intention of presenting it as his or her own work.

Signature: Michael D O Nyanjom
August 2007

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ABBREVIATIONS USED IN THIS STUDY

CE	Corporate Entrepreneurship
CEO	Chief Executive Officer
CSO	Central Statistics Office
DV	Dependant Variable
GM	General Manager
nArch	Need for Achievement
IV	Independent Variable
RSA	Republic of South Africa
UPSD	University of Pretoria Statistics Department

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Acknowledgements

Dedicated to my wife, Julie (Jay); daughter, Tess; son, Biko (my family)
Grace Marenya (my mother) and Jasper Aggrey Nyanjom (my late father)

My first gratitude goes to God for answering my persistent prayers during the turbulent and trying times I encountered while completing this project and for inspiring me with hope knowing that if God was there for me nothing could be against me.

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CORPORATE ENTREPRENEURSHIP ORIENTATION IN BOTSWANA: Pursuing Innovating opportunities

Abstract

This research dissertation presents a study which increases the understanding of how corporate firms in Botswana can develop and enhance entrepreneurial innovations and encourage entrepreneurial activity within their organisational boundaries. By so doing such organisations create an entrepreneurial oriented firm where pursuit for innovating opportunities thrive, thereby increasing their competitiveness as well as performance. This study aims to determine how such organisations culture a dynamic link between the pursuit of innovation and the essence of Corporate Entrepreneurship (CE) Orientation as a conduit to building the entrepreneurial organisation.

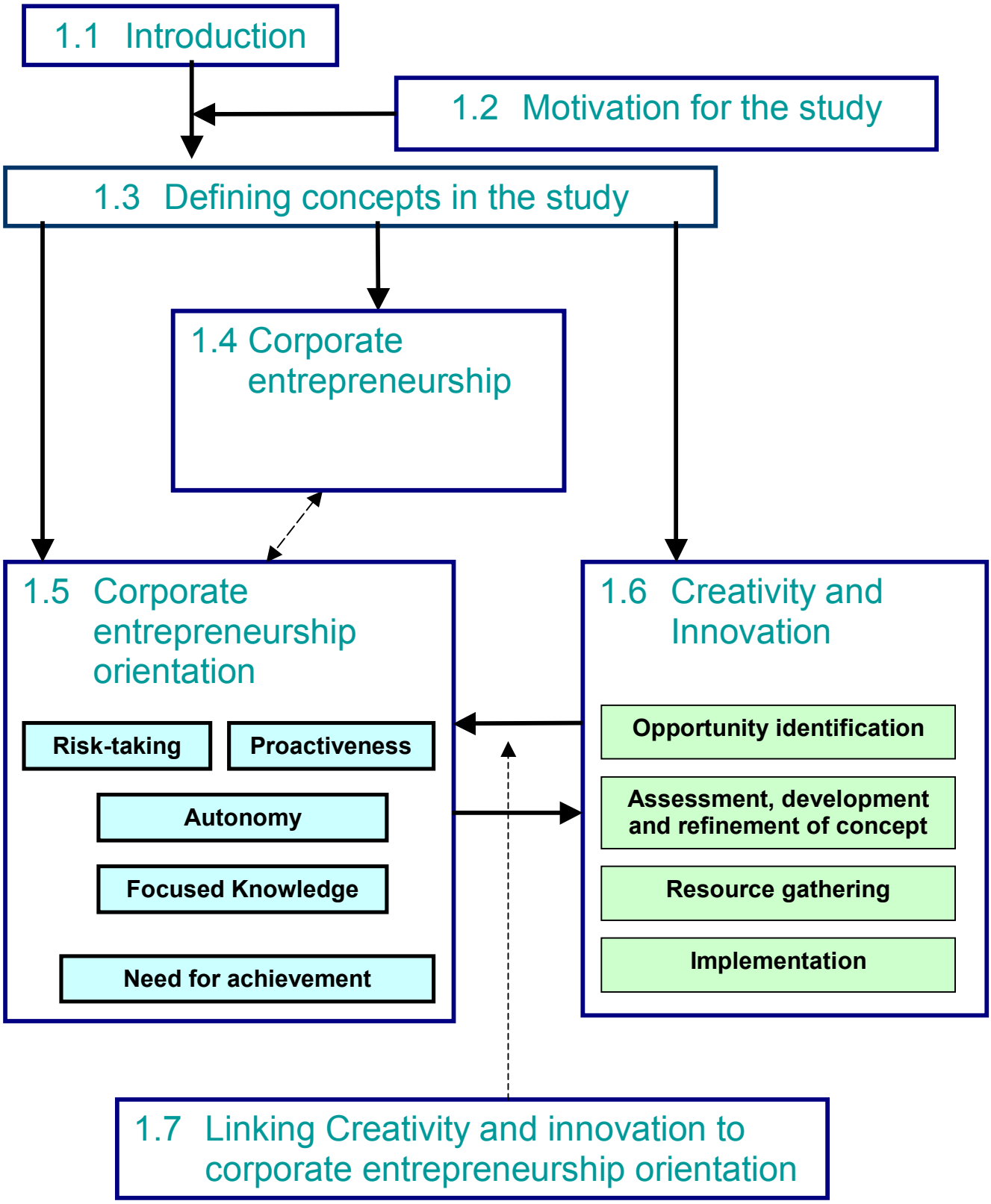
Existing studies carried out in the area of entrepreneurship in Botswana mirror on the areas of financing entrepreneurial firms and types of ownership. A search conducted on internet sources, University of Botswana data base as well as literature journals revealed no evidence of CE studies in Botswana. Therefore, there exists a literature gap in the area of CE studies on Botswana which this study seeks to bridge. Models established by studies in the area of CE elsewhere are used instrumentally in this study.

The study addresses the research problem by examining how existing firms in Botswana represent the concept of an entrepreneurial organisation within the sphere of corporate entrepreneurship. The intention is to identify and seek the knowledge, attitude and belief of the individual's potential as corporate entrepreneurs, their ability to be innovative and how such innovation is brought to fruition in such settings. The study adopted a cross sectional, formal study approach using primary data sources. It targeted a sample of 100 individuals operating within the sample frame of a corporate organisation in Botswana which employs over 100 employees. A research instrument in form of a questionnaire was used to obtain data. Simple random sampling was employed. The resulting data set was analysed and presented by means of descriptive and quantitative statistics using SAS package software of the University of Pretoria.

The study proves the inextricable link between CE orientation and the pursuit of innovation as a conduit to enhancing entrepreneurial activities in companies in Botswana. The findings however show that the level of innovation is affected by the perception of the innovation process comprising opportunity identification, generation and exploitation.

The findings of the study helps large corporate companies in Botswana to appreciate and develop entrepreneurial organisations. In such organisations, Corporate Entrepreneurial Orientations are an essential base which leads to the pursuit of innovation within corporate borders. In essence, the corporate entrepreneurial activity inherent within corporate borders raises immunity against complacency and bureaucracy. It affords the organisation the impetus for coping with a variety of simulated strategies and options in the competitive arena in which the organisation finds itself. Breeding entrepreneurial activity within corporate borders also leads the organisation to new and innovative ways of responding to the windows of opportunities that enhances potential for growth as well as contributing to the organisations performance through maximising utilisation of the inherent internal capacities and deriving a strategic fit therefrom.

CHAPTER ONE: BACKGROUND TO THE STUDY



CHAPTER 1
BACKGROUND TO THE STUDY

1.1 INTRODUCTION

Changes in the business environment and management philosophy have led to an increasing number of companies demanding internal entrepreneurship (Christensen, 2004:302). Internal entrepreneurship, or Corporate Entrepreneurship (CE) as it is widely known, is a concept linked to the entrepreneurial orientation of an organisation. Zimmerer and Scarborough (1996:32) describe entrepreneurial orientation as one that creates a positive atmosphere for employees to foster new ideas and encourages them to act upon them. In this regard, the employees act as entrepreneurs within the context of an organisation. Entrepreneurship within the corporate environment can therefore be conceived as the effort to extend an organisation's competitive advantage (Ferreira, 2002:2). The process of this competitive advantage is achieved through internally generated innovations that significantly alter the balance of competition within the industry or innovations that create entirely new industries.

The growing body of CE literature depicts CE as being initiated as a means for corporations to enhance the innovative abilities of their employees and to increase corporate success (Burns, 2005:5; Hornsby, Kuratko & Zahra, 2002:254; Kuratko, Montagno & Hornsby, 1990:49; Pinchot, 1985:3). Corporations thus struggle to manage the inherent contradictions when the dynamic external and internal environments surrounding their organisations interact. This forces the organisation to act in innovative ways. In the management of this situation, Bouchard (2001:3) points out that there is tension between the notions of the corporate entrepreneur on the one hand and that of the application of conventional corporate management practices on the other.

Existing studies carried out in the area of entrepreneurship in Botswana mirror on the areas of financing entrepreneurial firms and types of ownership. A search conducted on internet sources, University of Botswana data base as well as literature journals revealed no evidence of CE studies in Botswana. Therefore, there exists a literature gap in the area of CE studies on Botswana, which this study seeks to bridge. Models established by studies in the area of CE are used instrumentally in this study.

This study aims at increasing the understanding of how corporate firms in Botswana can develop and enhance entrepreneurial innovations and encourage entrepreneurial activity within their organisational boundaries. By so doing, such organisations create an entrepreneurial oriented firm where pursuit for innovating opportunities thrives, thereby increasing their competitiveness as well as performance. The study aims at determining how firms are able to culture a dynamic link between the essence of CE and the innovation process as a conduit to building the entrepreneurial organisation. The study builds the context of study from the domain of corporate entrepreneurship. Specifically, it looks at the CE Orientation and its relation to the pursuit of innovation within corporate boundaries. The focus of the study is on the individual entrepreneurs within an organisation.

This chapter concentrates on providing a literature background to the study. Firstly, it outlines the motivation that prompted this study by articulating the essence behind the CE Orientation. It then follows by reflecting on an overview of the study by looking at the context and constructs of the study. In this regard, corporate entrepreneurs, CE Orientation and creativity and innovation are defined and explored. The chapter also examines the barriers that exist in creating an entrepreneurial culture within the corporate setting. The focus of the study is determined by exploring the inter-linkage between the innovation and CE Orientation variables. From this focus, a study framework is drawn as a means to guiding the study.

1.2 MOTIVATION FOR THE STUDY

Evans (2000:242) advances that many large organisations have had to adopt more innovative and enterprising approaches in their organisations as a means to competing effectively in a dynamic and fast changing world markets. He asserts that the development of entrepreneurship within a corporate environment therefore becomes of essence in such settings. Mourdoukoutas and Papadimitriou (2002:1) concur with the above assertion by adding that entrepreneurship must be nurtured within business institutions. They observe that such a move would release the imagination, ingenuity and creativity of the individual and group and turn them into new product, processes and forms in the organisation.

Thornberry (2003:330) points out that CE is quickly becoming a weapon of choice for many large corporations. He suggests that CE is an attempt to take both the mindset and

skill set demonstrated by successful entrepreneurs and to weave them into the fabric of the culture and activities of large corporations. Thornberry (2001:526) advances that CE encompasses the knowledge, attitude and actions that ignites the flame in corporate organisations. Essentially the embracing of CE by organisations has the desired effect of providing the organisation with immunity against staleness, lack of innovation and stagnated growth.

The notion of building entrepreneurial thinking and acting within a corporate organisation unveils several benefits that accrue to the various stakeholders within the boundaries of the organisation. The study poises that it is this thinking and acting that propels the CE Orientation in organisations. Establishing an entrepreneurial orientation within the organisation serves to increase entrepreneurial activity within the organisation. The injection of CE Orientation therefore acts as an impetus for allowing flexibility and responsiveness to change within the environments. Essentially, this builds a certain cache and stimulation within organisations that is hard to resist.

Introducing CE into the corporate organisation involves radically changing the patterns predominantly inherent in the traditional management set up of corporate organisations. Antoncic and Hirsh (2003:10) propose that it is imperative that for a corporation to improve performance in their organisation, there is need to culture and nurture a congenial environment in which CE becomes prevalent and fundamental.

From the literature advanced above, CE Orientation can be viewed as an essential ingredient that organisations must savour for the reason that it catalyses the organisations competitive advantage positioning. Further to this, the knowledge of entrepreneurship determination within the corporate settings provides an impetus for organisational excellence. Therefore, having such entrepreneurs operating within the corporate borders provides and/or unleashes a rejuvenation process that lends to the organisation's success.

Due to the lack of research in the field of CE in Botswana, there is a need for studies to be initiated in this regard particularly since CE is viewed as a means to asserting competitive advantage as well as an avenue to a firm's success through internal excellence. It is on this premise that the study nestles.

1.3 DEFINING CONCEPTS IN THE STUDY

Welman, Kruger and Mitchell (2005:20) advance the notion that concepts are the building blocks of any theoretical model. They describe a concept as an abstraction representing an object, a property or certain phenomenon. In their view therefore concepts serve as the foundation of communication, introduce a perspective, provide a means of classification and generalisation and are components of theory. This view is shared by Cooper and Schindler (2006:36) who regard a concept as a generally accepted collection of meanings or characteristics associated with certain events, objects, conditions, situations and behaviours.

The study delineates three concepts that attempt to provide the model for the study namely CE, CE Orientation and Innovation. CE is examined in detail in 1.4, CE Orientation in 1.5 and innovation in 1.6.

1.4 CORPORATE ENTREPRENEURSHIP

1.4.1 Defining Corporate Entrepreneurship

CE has been described as a term used to describe entrepreneurial behaviour inside established midsize and large organisations. CE adopts behavioural styles and practices that act to challenge bureaucracy and encourages innovation. It is also responsible for stimulating innovation within the organisation through the exploration and exploitation of new opportunities within the organisation (Antoncic & Hirsh, 2003:9; McFadzean, O'Loughlin & Shaw, 2005:351; Morris & Kuratko, 2002:31; and Thornberry, 2003:330). In addition Zahra (1996:1714) notes that CE also includes various attitudes and action that enhances a company's ability to seize opportunities take risks and innovate.

CE, as described previously, involves examining entrepreneurship from an organisational perspective. CE is important to organisations that are interested in realising the benefits of entrepreneurial activity. Christensen (2005:306) explains that entrepreneurial activity within the firm is a mechanism for coping with variety in the firm's environment. Unleashing entrepreneurial activity lends to the creation of new business opportunities.

To foster the understanding of CE, it is important to look at the role of the individuals who enact entrepreneurship within the corporate setting.

1.4.2 Corporate Entrepreneurs

Corporate entrepreneurs can be regarded as entrepreneurs working within corporate organisations (Morris & Kuratko, 2002:84). Thornberry (2003:331) augment this view by suggesting that CE are those who bring to bear the mindset and behaviours characteristic of external entrepreneurs and transpose them to an existing and usually large corporate setting. Christensen (2004:306), however, proposes that it still seems to be a concept in search of a clear definition. As such, it becomes imminent that the operating definition of a corporate organisation for the purpose of this study is sought.

Unlike countries such as the Republic of South Africa (RSA), the Botswana statutes do not make specific provisions for identifying what a corporate organisation represents in quantitative and qualitative terms. However, there exists a policy document on small business (Ministry of Commerce and Industry, 1999:3), which authoritatively provides quantitative measures for determining what a small business is. This document categorises small and medium sized enterprises as those that have an employee work force of less than 25 and 100 employees respectively. This study therefore adopts the position that corporate enterprises are what small businesses and medium sized enterprises are not. Thus by inference, the study affords that corporate enterprises will form those establishments that have over 100 employees.

1.4.3 The Domain of Corporate Entrepreneurship

The concept of entrepreneurship within an existing organisation has evolved over the last three decades, has intrigued both scholars and practitioners, is an evolving area of research and has become the focus of increasing attention (Bouchard, 2001:4; Christensen, 2004:303; Dess, Ireland, Zahra, Floyd, Janney & Lane, 2003:351; and Ferreira, 2002:1). However, CE seems to be a concept in search of a clear definition arising from the premise that it is a multi dimensional phenomenon (Christensen, 2004:303; Covin & Miles, 1999:47; and Russell, 1999:67). CE is open to different facets

and requires that in order to establish its domain, the processes providing its existence should be focused on.

Hornsby, Naffziger, Kuratko and Montagno (1993:30) allude that CE refers to a multidisciplinary process with many forces acting in concert that leads to the implementation of an innovative idea. Zahra, Jennings and Kuratko (1999:45) share this view adding that there are many facets to entrepreneurship at firm level, which reflect the different combinations of three strands. Firstly, is the consideration given to the content of entrepreneurship encapsulating corporate venturing, innovation and proactivity. Secondly, the source of entrepreneurship is considered whether internal or external. Finally, by dwelling on the focus of entrepreneurship whether it is formal or informal.

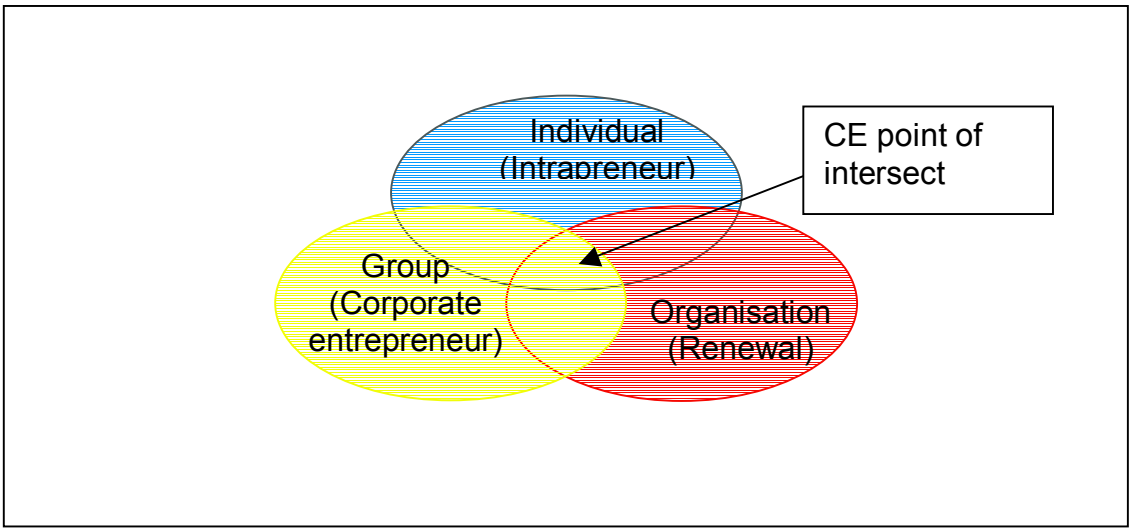
Morris and Kuratko (2002:62) add to this literature by providing the argument that by using the term CE, only the context changes and not its fundamental premise. As such, in applying the concept of CE, this study acknowledges the advances of Kuratko *et al*. (1990:49) that the need to pursue CE has arisen from a variety of problems. The first of such problems is the required changes, innovations and improvements in the market place to avoid stagnation and decline. The second problem is the perceived weaknesses in the traditional methods of corporate and entrepreneurial management which lend a hand to stifle CE. Finally, the turnover of innovative minded employees who are disenchanted with bureaucratic organisations.

Given these viewpoints, it is necessary to build an integrative perspective of this domain. The work of Covin and Miles (1999:48) provides a clarification of CE by delineating and distinguishing the three strands of CE. They support these strands to emanate from the individual (Intrapreneurship), group (Corporate venturing) and organisational (Corporate entrepreneurship) perspectives of the domain. Their assertion, which emphatically provides the strands of CE literature, can be seen in the perspective of establishing the broad base of understanding CE from contribution of various scholars.

The study builds upon the models of academic contribution advanced in the field of CE. The study thus views CE from the perspectives of the individual, the group and the organisation as represented in Figure 1.1. The point at which the corporate entrepreneur can interchange individuality roles to fit into the prescribed three levels of CE is called the

CE point of intersect and represents a high level of CE. However, the study looks at the individual in all or any of the categories concerning the individual self and this comprises the study interest.

Figure 1.1: Individual corporate entrepreneur in different levels



Source: Own compilation

1.4.3.1 Intrapreneurship

Struwig (2003:347) states that the concept of intrapreneurship was first espoused by Pinchot (1985). He advances that Intrapreneurship attempts to take the mindset and behaviours that external entrepreneurs use to create and build businesses, and bring these characteristics to bear inside an existing and large corporate setting. Burns (2005: 134) observes that the term is generally used to describe the individual charged with pushing through innovations within a larger organisation, in an entrepreneurial fashion.

1.4.3.2 Corporate Venturing

The formation of new corporate ventures takes the other area of focus in the CE strand. Burns (2005:12) notes that a corporate venture is concerned with larger businesses needing to manage new, entrepreneurial businesses separately from the mainstream activity. In this respect Antoncic and Hirsh (2003:8) state that the primary emphasis tend to focus on the differentiation of types of new ventures, their fit with the corporation, and their enabling corporate internal environment. The work of Block and Macmillan (1993:14)

encapsulates the essence of corporate ventures. They emphasise that corporate ventures involves the starting of businesses within a business, usually emanating from a core competency or process. It can therefore be seen as a group activity within the organisation towards creating smaller business units within the business (Covin & Miles, 1999:48).

1.4.3.3 Organisational Renewal

Sharma and Chrisman (1999:11) portend that the self renewal dimension is a reflection of the transformation inherent in organisations through the renewal of key ideas upon which the organisations strive. Thus, the premise behind this strand of literature is that large firms need to adapt to an ever-changing environment if they are to survive. To do so they need to adapt their structures and cultures to encourage entrepreneurial activity in individual employees. Antoncic and Hirsh (2003:12) assert that this school of thought proposes that individual behaviour is fashioned by the leadership, strategy, systems, structures and culture in organisations. Organisational renewal thus has organisational change implications which include the redefinition of the business concept, reorganisation and the introduction of system wide changes for innovation. Drawing an analogy from the contributions advanced by the various authors, inferences can be made that this is an organisational effort to effect strategic and organisational change. Zahra (1995:225) points out that these changes include a redefinition of the business concept, reorganisation and introduction of system-wide changes for innovation.

As noted above, the objective of CE is simply to gain a competitive advantage by encouraging innovation at all levels in the organisation. Sharma and Chrisman (1999:12) define CE as the process whereby an individual or group of individuals, in association with an existing organisation, create a new organisation or instigate renewal or innovation within that organisation. Carrier (1996:9) supports this view by anchoring CE as those who innovate on behalf of an existing organisation. Zahra (1996:1713) addresses performance measures of CE by pointing out that CE is important for organisational survival, growth, profitability and renewal, especially in larger organisations.

From the above discussions, CE can be seen as the effort in promoting innovation from an internal organisation perspective. Thus, the corporate entrepreneurs represented in this study are individual's in organisations from supervisory levels upwards acting in their individual capacity (or capacities) within the organisation.

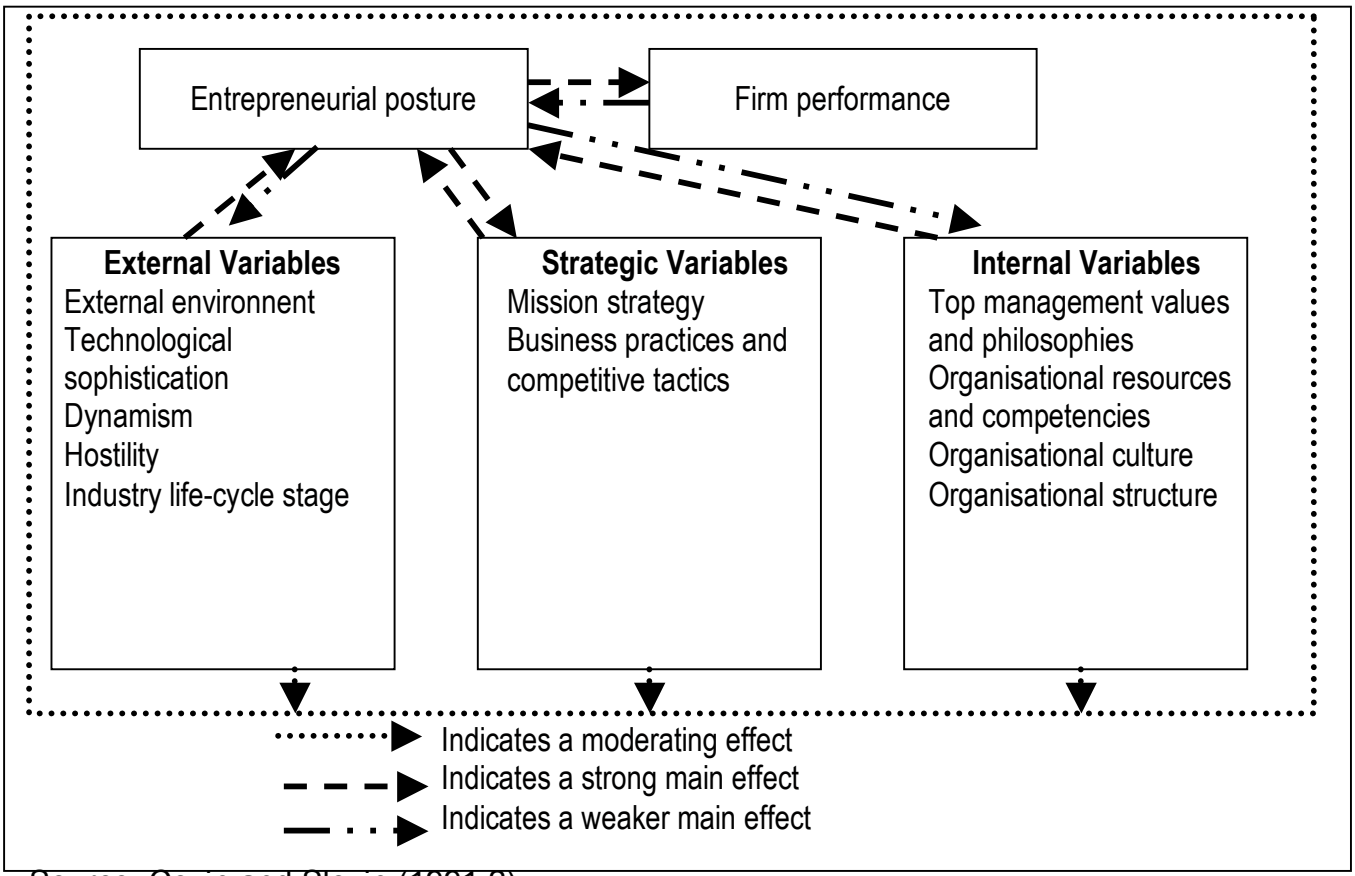
1.4.4 Background to Corporate Entrepreneurship

Several studies have contributed to the advancement of the development of a theory of corporate entrepreneurship (Ferreira, 2002:9). To this end, a variety of frameworks have been developed by researchers to validate the understanding of corporate entrepreneurship. These theories are pertinent to this study as they provide a basis for understanding the context of the study. Some of these are presented below:-

1.4.4.1 Organisational behaviour

The work of Covin and Slevin (1991:2) conceptualises entrepreneurship as an organisational level phenomenon. It deals with the extension of the firms' domain of competence and corresponding opportunity set through internally generated new resources. These new resources are seen to emanate from external variables, strategic variables and internal variables as shown in Figure 1.2 below:-

Figure 1.2: A Conceptual model of entrepreneurship as a firm behaviour



Source: Covin and Slevin (1991:2)

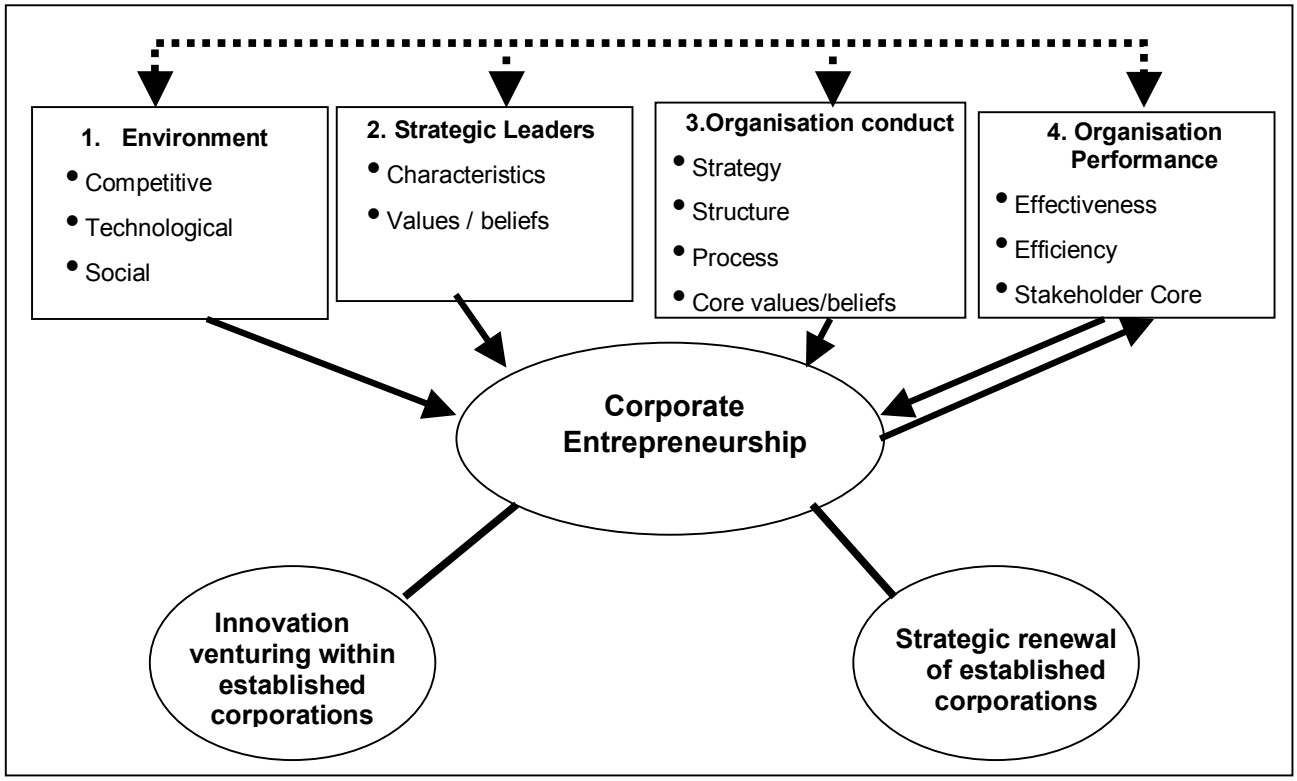
The conceptual framework in Figure 1.2 is important to this study as it identifies a basis upon which the study variables can be constituted and how the link with entrepreneurial

activity (or posture) which draws upon innovation is derived. It is inherent that creating the entrepreneurial culture, building the entrepreneurial organisation and managing the entrepreneurial organisation as described in the following paragraphs, can therefore be interlinked.

1.4.4.2 A domain framework

Guth and Ginsberg (1990:5) present a framework that develops the knowledge of corporate entrepreneurship as embracing two perspectives and processes which surround them. The first activity is that of creating new businesses in established companies which involves internal innovations or venturing. The other is the transformation of the organisation through strategic renewal. The model is illustrated in Figure 1.3.

Figure 1.3: Fitting Corporate Entrepreneurship into strategic management



Source: Guth and Ginsberg (1990:5)

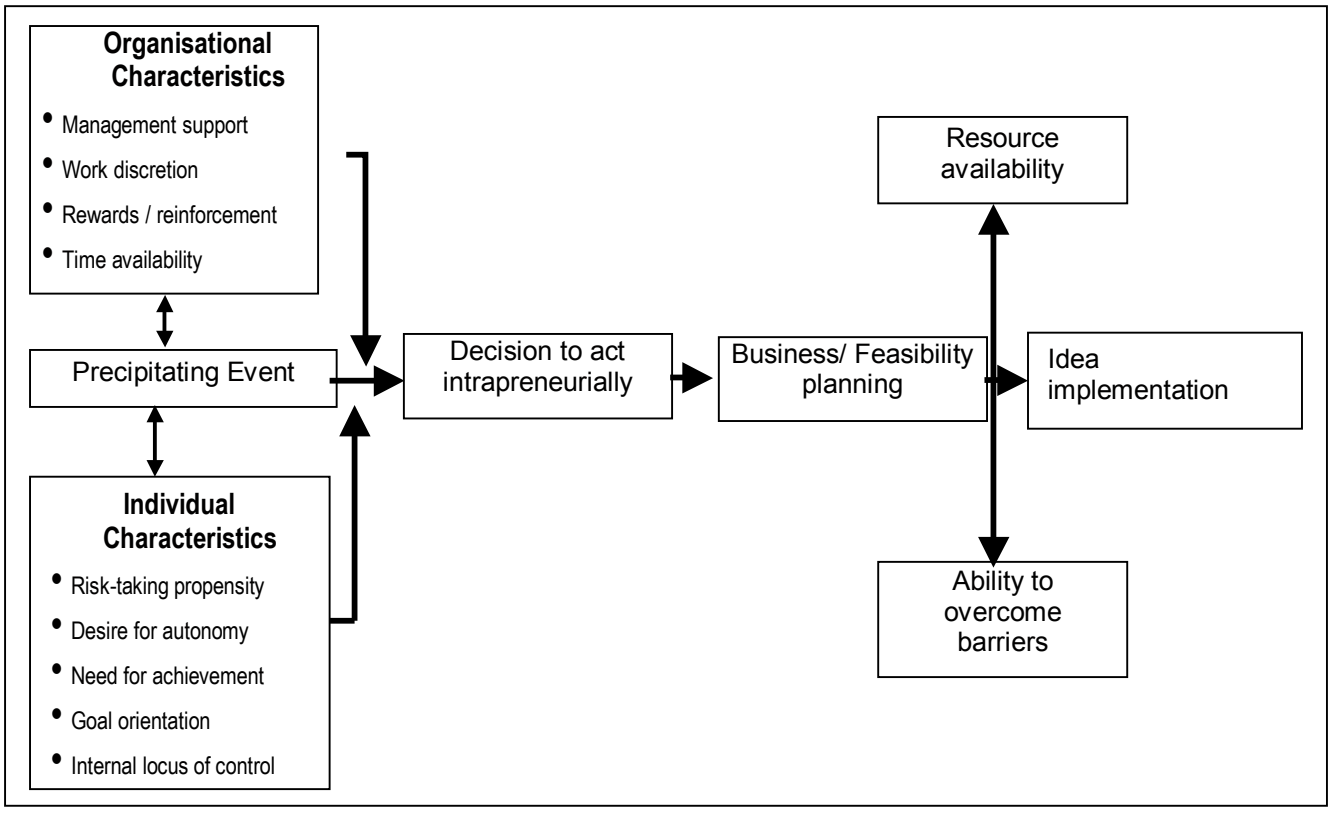
The premise behind this model is that large firms need to adapt to an ever changing environment and to do so, they need to adapt their structures and cultures as a means to encouraging entrepreneurial activity within the organisation. Consequently, the key

components are drawn from the environment, strategic leaders, organisation form and performance. It is deemed that these components are inter-active and important in determining the outcomes of entrepreneurship.

1.4.4.3 An interactive framework

The integrative framework poised by Honsby *et al.* (1993:31) proposes the interaction of organisational factors with those of individual characteristics. Organisational factors in this case encompass management support, work discretion, rewards/reinforcement, time availability and organisational boundaries. Individual characteristics, on the other hand, include risk-taking propensity, desire for autonomy, need for achievement, goal orientation and internal locus of control. In this framework, Honsby *et al.* proposes that for a successful CE, these characteristics are ignited by a precipitating event (such as development of technology or change in company management) as shown in Figure 1.4.

Figure 1.4: An interactive model of corporate entrepreneurship



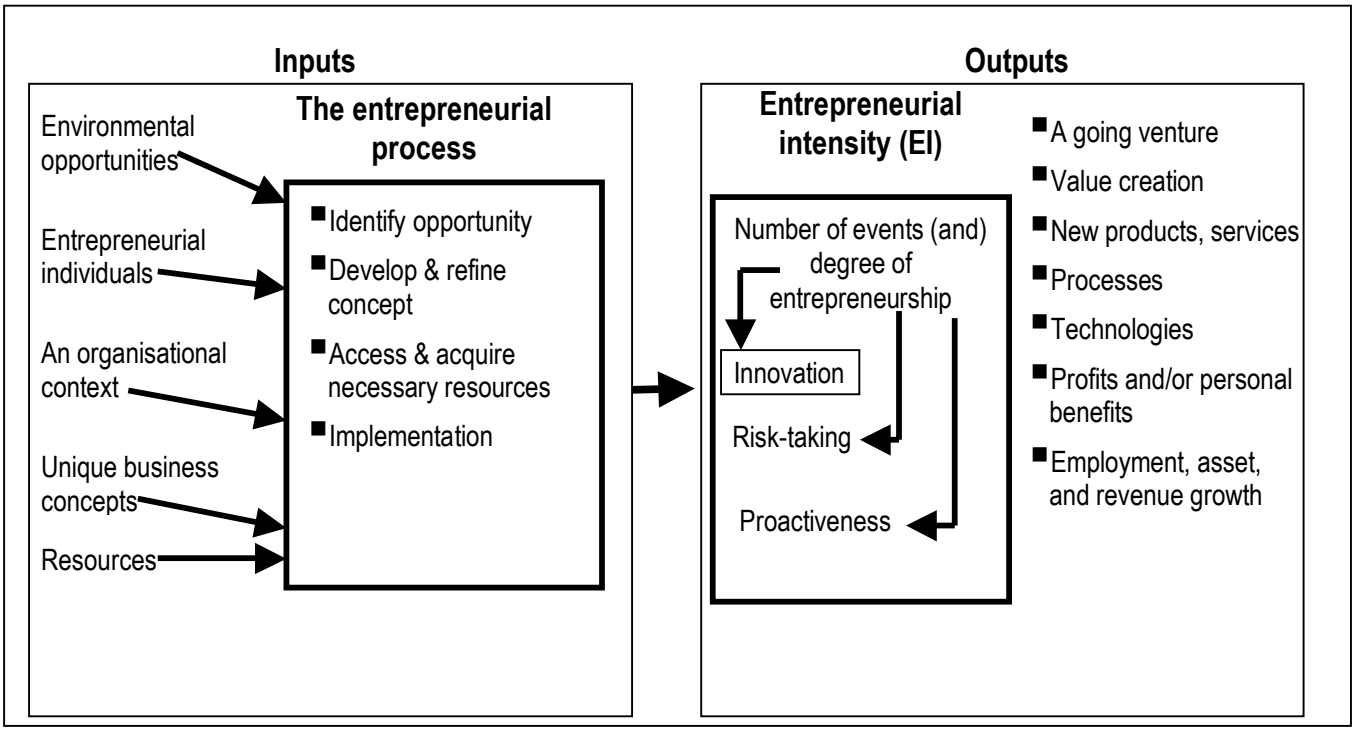
Source: Honsby *et al.* (1993:31)

1.4.4.4 An integrative model

An integrative model as detailed in Figure 1.5, is presented by Morris, Lewis and Sexton (1994) in Morris and Kuratko (2002:30) in which the inputs to and outputs from the entrepreneurial process are examined. The model presents five key elements that contribute to the entrepreneurial process. These are identified as entrepreneurial opportunities, entrepreneurial individuals, organisational context, unique business concepts and resources.

The output depicts the level of entrepreneurship being achieved. This element dubbed entrepreneurial intensity can result in a number of entrepreneurial events and the degree of entrepreneurship. These elements thus lead to final outcomes which include one or more going ventures, value creation processes, new technologies, jobs, and profits among others.

Figure 1.5: An integrative model of entrepreneurial inputs and outcomes



Source: Morris and Kuratko (2002:30)

This model provides a comprehensive reflection of the nature of entrepreneurship and a basis for its applicability in a corporate setting. The model is of interest in this study as it points out the degree of entrepreneurship which is of interest to the study.

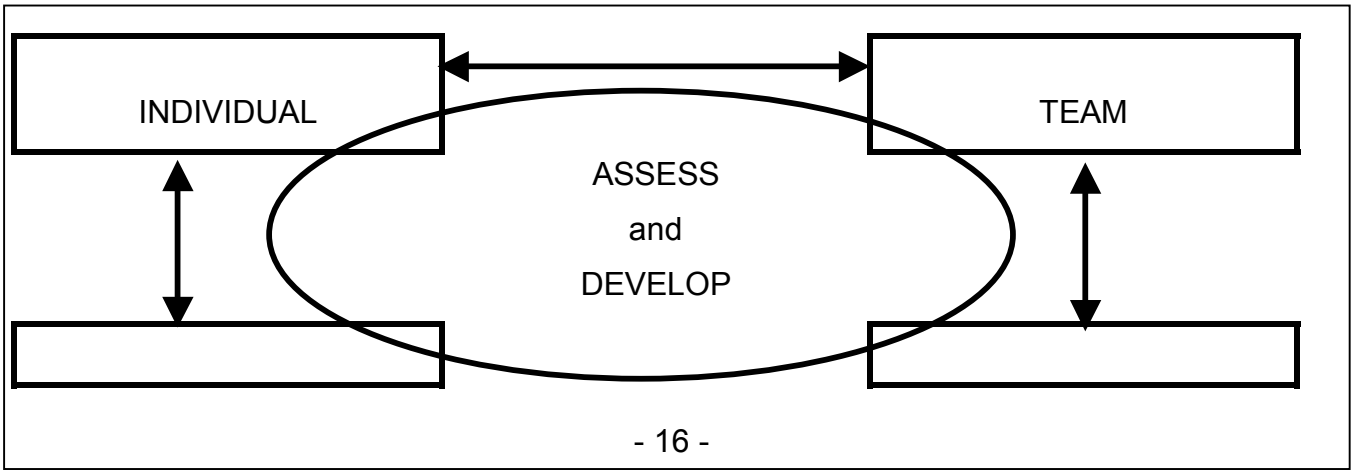
1.4.5 Architecture of the Entrepreneurial Organisation

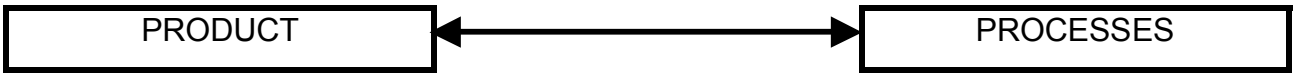
In response to the rapid change in competition and pressures of technological advances, organisations have to make their employees and organisations more entrepreneurial. Chandler, Keller, and Lyon (2000:25) observe that organisations have to nurture culture, systems and structures, which encourage individual initiative and innovation as a conduit for continued prosperity. Thompson (2004:1083) points out that in order to be competitive it is necessary for corporations to become more entrepreneurial.

Building the entrepreneurial organisation entails the transformation of the organisation in order to foster replication of entrepreneurship within the larger corporate entity. Brazeal and Herbert (1999:36) point out that the strategic intention of an entrepreneurial organisation is to consistently produce a stream of innovations by nurturing and maintaining innovative oriented individuals and processes. The innovation streams impacts the organisation by ensuring creativity blossoms within the organisation.

Bamber, Owens, Davies and Suleman (2002:203) propose a model that depicts that entrepreneurial organisations will be promoted when the objectives set by both an organisational needs analysis and an individual needs analysis are accomplished. They propose that the process, as well as the product development and assessment (Figure 1.6) must also be considered. Put together, an effective product development process coupled with effective entrepreneurship learning and a conducive environment can enable entrepreneurial success for entrepreneurial orientation.

Figure 1.6: A continuous development model for an entrepreneurial environment





Source: Bamber *et al.*, 2002:205

Jarna and Kaisu (2003:9) studied the potential elements of measuring entrepreneurship in existing organisations as management activity and organisational culture, organisation setting, individual skills and attitudes, perceived customer satisfaction and job satisfaction. They found that the prerequisites and outcomes of CE have a positive relation with these factors. In instances where the higher levels of these perquisites were noted both in quantity and quality, the more the outcomes of corporate entrepreneurship were noted.

1.4.6 Barriers to Corporate Entrepreneurship

Large corporations have an inherent problem of being entrepreneurial for a host of reasons. Morris and Kuratko (2002:173) present a framework of understanding the obstacles to entrepreneurship as indicated in Figure 1.7. This framework groups such barriers into six categories of system, structures, direction, procedures, people and culture.

Figure 1.7: Categories of organisational constraints on entrepreneurship

Systems	Structures	Direction	Procedures	People	Culture
Misdirected reward and evaluation systems Oppressive control systems Inflexible budgeting system Arbitrary cost allocation systems Overly rigid, formal planning	Too many hierarchical levels Overly narrow span of control Responsibility without authority Top-down management Restricted communication channels Lack of accountability	Absence of innovation goals No formal strategy for entrepreneurship No vision from the top Lack of commitment from senior executives No entrepreneurial role models at the top	Long complex approval cycles Extensive documentation requirements Over reliance on established rule of thumb Unrealistic performance criteria	Fear of failure Resistance to change Parochial bias “Turf” protection Complacency Short term orientation Inappropriate skills/talents	Ill-defined values Lack of consensus over priorities Lack of fit Values that conflict with entrepreneurial requirements

system					

Source: Morris and Kuratko (2002:173)

1.4.6.1 Systems

Struwig (2003:354) suggests that established systems which no one is willing to change causes inertia. She further states that businesses are governed by explicit and implicit systems which people are reluctant to change thereby dousing entrepreneurship. Bouchard (2001:4) advances the argument that at the root of the differences between entrepreneurship and corporate management stands the deep divide that opposes exploration in favour of exploitation. The author suggests that on the one hand, entrepreneurship, which implies identification of non-addressed needs, proposing original solutions and creating new organisations is centred on exploration. Corporate (or conventional) management, on the other hand, is centred on exploitation. It focuses on optimisation of resources, making judicious decisions allocation decisions and controlling their correct utilisation.

From these viewpoints, the study notes that over time, organisations adopt certain managerial systems for which the change is not accorded thus stifling entrepreneurship within company borders.

1.4.6.2 Structures

Evans (2000:252) poises that the hierarchical nature of large corporations is not conducive to entrepreneurial behaviour with considerable distance between the top layers of management and the lowest level of the workforce. He suggests that structures result in impersonal relationship between management and staff that would lead to many layers of approval between the potential entrepreneur and the person in charge of resources.

Morris and Kuratko (2002:174) indicate that the more hierarchical levels are infused into the organisational structure, the more top-down management is created as well as restrictive channels of communication. They advance that this result in intransigence, which adversely affects commitment to innovation and change at all levels of the organisation.

1.4.6.3 Policies and procedures

Krueger (1998) in Evans (2000:252) suggests that the established procedures, reporting systems, lines of authority and control mechanisms of a traditional hierarchical organisation are there to support the existing management structure and not to promote creativity and innovation. This view is supported by McGrath and Macmillan (2000:232) who indicate that the straight jackets of planning requirements imposed by conventional management have led to stifling new initiatives.

1.4.6.4 People

Martins and Terblanche (2003:68) observe that entrepreneurs operating in organisations do not always have the latitudes and freedom needed to bringing innovations to fruition arising from the imposition of controls by the organisations management. It can be viewed that the management and leadership of organisations are essentially the key parameters that shape corporate governance and dictate the tone of practice and procedures in the corporation. Entrepreneurial activity within corporation settings on the other hand is driven by the need to innovate but nestles under and is impacted on by the controls imposed by management.

1.4.6.5 Culture

Evans (2000:252) suggests that the barriers created mainly stems from the considerable differences between the traditional corporate cultures found in organisations and an entrepreneurial culture. Morris and Kuratko (2002:176) expound on this by adding that the company needs to build commitment on a set of values that pervade every aspect of the company's operation. In their view, when the pervading emphasis is on the imitation of competitors, conservation and self aggrandisement, then the commitment dwindle.

1.4.6.6 Strategic direction

Zhao (2005:38) identifies that an ideal management style for innovation should be open and supportive, should encourage and nurture new product development, and should

identify new needs of customers, new uses and new markets through an ability to absorb information from various sources. The style of an innovative and entrepreneurial organisation should provide employees with a culture of empowerment and should boost a reward system that provides incentives and innovative and entrepreneurial behaviours, values and assumptions.

1.4.7 Overcoming barriers to CE

Leavy (2005:45) finds that in order for an entrepreneurial culture to be asserted into an organisation, the following must be inherent within the organisation:-

- **A right organisation climate** which places people and ideas at the heart of management philosophy, must be present. This gives room for people to grow, trying to learn from past mistakes and also building a strong sense of openness, trust and community cross the organisation. The fluidity of facilitating the internal mobility of talent thus ensures that ideas circulate freely, so that intellectual capital can be leveraged to the maximum;

- **Attracting and retaining more creative talent.** Hiring individuals with a range of abilities and interests and with backgrounds and personalities inculcates an innovative culture in the organisation; and

- Leaders need to **strike the right balance between innovation and efficiency** within the innovation process itself, between the primary functions within the organisation and in their overall approach to corporate management.

This study views that the balance between entrepreneurial freedom and organisational checks and balances therefore imposes a great challenge to the paradigm shift to organisations that want to become entrepreneurial. In essence, such organisations must learn to overcome the barriers indicated above as a means to improving the creativity and innovations within their corporate boundaries.

1.5 CORPORATE ENTREPRENEURSHIP ORIENTATION

1.5.1 Defining Corporate Entrepreneurship Orientation

Rauch, Wiklund, Frese and Lumpkin (2004:164) suggest that the salient dimensions of entrepreneurial orientation can been derived from a review and integration of the strategy making processes and entrepreneurship literatures. From their review of the work of several researchers, there emerge five dimensions of entrepreneurial orientation identified as innovativeness, risk-taking and proactiveness, need for achievement and autonomy. Dess and Lumpkin (2001:3) refer to entrepreneurial orientation as the strategy making practices and processes that managers engage in to identify and create venture opportunities. Morris and Kuratko (2002:39) further advance that EO also provides a platform to empower employees in decision-making. Nieman and Pretorius (2004:19) continue that personal entrepreneurial orientation to encompass creativity and innovation, autonomy, risk-taking, proactiveness and competitive aggressiveness. They observe that this EO is an important ingredient for ventures.

Whilst Lumpkin and Dess (2001:430) argue that entrepreneurial orientation may occur in different dimensions, there are some researchers who suggest that dimensions of entrepreneurial orientation tend to vary independently rather than co-vary (Rauch *et al.*, 2004:164). This observance is fundamental to this study as the study constructs them as moderating variables to the CE Orientation concept. For this reason, it is expected that correlations will be derived that will tend to reflect and measure their relationship with the independent variable.

This study conceptualises the CE Orientation construct from the discussions above. It builds the premise that the CE Orientation would encompass both the practices and processes inherent in strategy formulation as well as entrepreneurship. This is essentially the dimensions which entrepreneurship takes and in this case, a reflection is done based on CE. The conceptualisation is set in three phases. In the first phase, a theoretical background the corporate entrepreneurship is drawn. Secondly, a content analysis of the CE Orientation is sought based on the theoretical framework. Thirdly, the study identifies and examines as the drivers of CE Orientation as the basic theme to CE Orientation.

1.5.2 Content analysis for Entrepreneurship Orientation

A content analysis of the term entrepreneurial orientation was carried out in the light of CE manifestations within corporate boundaries. In this regard, contributions of scholars in this area have been considered as indicated in Table 1.1. In the table, the key dimensions of firm-level entrepreneurship are brought to the fore through the identification of concepts such as autonomy, innovativeness, risk-taking, proactiveness and competitive aggressiveness.

The content analysis was done for two main reasons. Firstly, to act as a guide in establishing the strands of CE Orientation inherent in a company. The establishment of such strands would ensure that the pertinent dimensions to the study were fully integrated within the scope of the study. Secondly, to ensure that a wide coverage was done to encapsulate the work of various scholars and academics as a means to widening the net of the study.

From the above, the study develops the view that entrepreneurial orientation transposes itself as a representation of corporate entrepreneurship with autonomy, innovativeness, risk-taking, proactiveness and competitive aggressiveness being the main drivers to CE Orientation.

1.5.2.1 Drivers to Corporate Entrepreneurship Orientation

CE Orientation drivers are regarded as the pertinent features of entrepreneurial orientation that provide the base upon which the corporate entrepreneurs promulgates into acquiring the necessary entrepreneurial characteristic. The essences of these drivers were solicited through a content analysis as indicated in Table 1.1. The drivers are the product of the entrepreneurs' urge to either exploit or explore innovation opportunities. The process of exploration involves actions represented by the active seeking and discovery or mining in order to reveal a new product or process. The exploration assumes the role of taking advantage of and implementing the discovered process that makes the entrepreneur ride on the crest of competitive advantage. These processes are denoted in Figure 1.8.

Table 1.1: Content analysis for Corporate Entrepreneurship Orientation

			Drivers of CE Orientation				
Researchers	**Concept name**	**Characteristic Definition**	**Innovativeness**	**Risk-taking**	**Proactiveness**	**Autonomy**	**Competitive Aggressiveness**
Knight (1997)	Entrepreneurial orientation	Pursuit of creative or novel solutions to challenges confronting the firm, including the development or enhancement of product or services, as well as administrative techniques and technologies for performing organisational functions (Knight, 1997:214). The opposite of reactiveness and is associated with aggressive posturing relative to competitors (Knight, 1997:214).	√		√		
Lumpkin and Dess (1996)	Entrepreneurial orientation	Independent action of an individual or team in bringing forth an idea or a vision and carrying through completion (Lumpkin & Dess, 1996:140). A firm's tendency to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services or technological processes. (Lumpkin & Dess, 1996:142). A sense of uncertainty…probability of loss or negative outcome…high leverage from borrowing and heavy commitment of resources (Lumpkin & Dess, 1996:144). Taking initiative by anticipating and pursuing new opportunities and by participating in new markets (Lumpkin & Dess, 1996:146).	√	√	√	√	

Table 1.1 continues….

			Drivers of CE Orientation				
Researchers	**Concept name**	**Characteristic Definition**	**Innovativeness**	**Risk-taking**	**Proactiveness**	**Autonomy**	**Competitive Aggressiveness**
Covin and Slevin (1991)	Entrepreneurial posture	Risk-taking with regard to investment decision and strategic actions in face of uncertainty (Covin & Slevin, 1991:10).		√			
		The extensiveness and frequency of product innovation and the related tendency toward technological leadership (Covin & Slevin, 1991:10).	√				√
		The pioneering nature of the firm's propensity to aggressively and proactively compete with industry rivals (Covin & Slevin, 1991:10).			√		
Nieman and Pretorius (2004)	Personal entrepreneurial orientation	Entrepreneurs do not like being tied down by rules and regulations of traditional jobs (Nieman & Pretorius, 2004:20).				√	
		Entrepreneurs do not wait for things to happen, they make them happen (Nieman & Pretorius, 2004:20).			√		
		The entrepreneur who has growth as an objective for his or her venture must develop competitive aggressiveness. (Nieman & Pretorius, 2004:20).					√
		All entrepreneurs face personal risk. (Nieman & Pretorius, 2004:20).		√			
		Creativity and innovation are seen as creating a niche within the market (Nieman & Pretorius, 2004:20).	√				

Table 1.1 continues….

			Drivers of CE Orientation				
Researchers	**Concept name**	**Characteristic Definition**	**Innovativeness**	**Risk-taking**	**Proactiveness**	**Autonomy**	**Competitive Aggressiveness**
Rauch, Wiklund, Frese and Lumpkin (2004)	Entrepreneurial orientation	Predisposition to engage in creativity and experimentation through the introduction of new product services (Rauch *et al.*, 2004:165).	√				
		Bold actions by venturing into the unknown, borrowing heavily, and/or committing significant resources to ventures in uncertain environments (Rauch *et al.*, 2004:165).		√			
		An opportunity seeking, forward looking perspective characterised by the introduction of new products and services ahead of the competition and acting in anticipation of future demand (Rauch *et al.*, 2004:165).			√		
		Independent action undertaken by entrepreneurial leaders or teams directed at bringing about a new venture and seeing it to fruition (Rauch *et al.*, 2004:166)				√	
		Intensity of a firm's effort to outperform rivals. (Rauch *et al.*, 2004:166)					√

Table 1.1 continues….

			Drivers of CE Orientation				
Researchers	**Concept name**	**Characteristic Definition**	**Innovativeness**	**Risk-taking**	**Proactiveness**	**Autonomy**	**Competitive Aggressiveness**
Morris and Kuratko (2002)	Entrepreneurial intensity	A departure from what is currently available, new or improved services or finding better ways to accomplishing a task or function (Morris & Kuratko, 2002:39).	√				
		Willingness to pursue opportunities that have a reasonable likelihood of producing losses or significant performance discrepancies (Morris & Kuratko, 2002:41).		√			
		The opposite of reactiveness. Involves acting on rather than reacting to (leading rather than following). It is involved with implementation, taking responsibility and doing whatever is necessary to bring an entrepreneurial concept to fruition. (Morris & Kuratko, 2002:44).			√		

Source: Own compilation

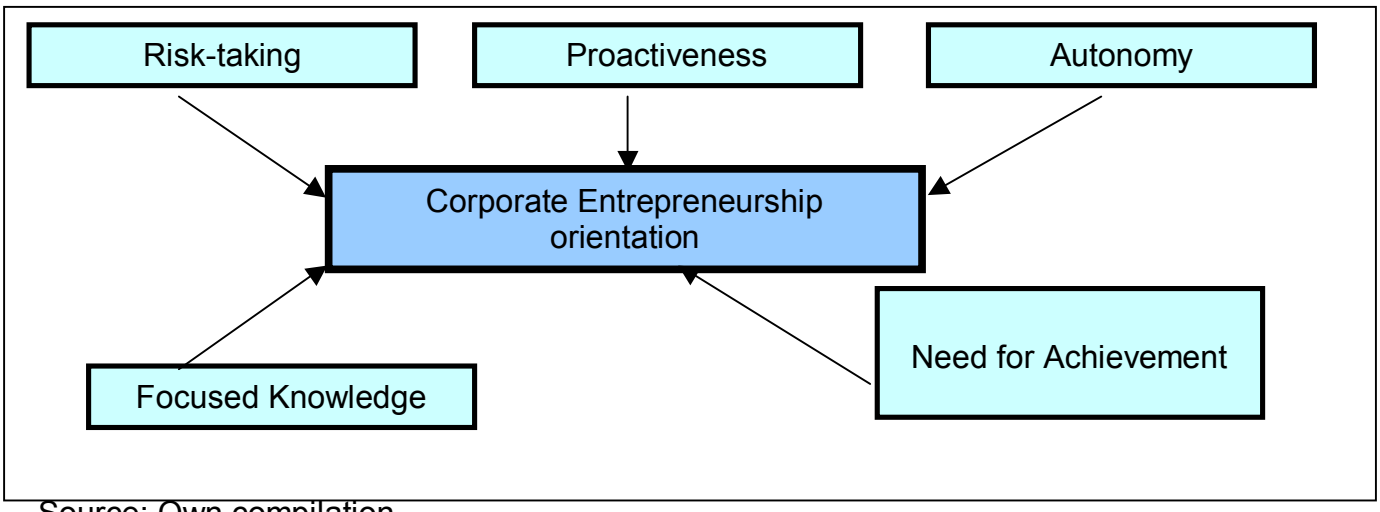
1.5.3 Corporate Entrepreneurship orientation drivers

Important features of CE drivers have been identified by the content analysis conducted. There are contributions by authors to the effect that entrepreneurial orientation has five dimensions namely autonomy, innovativeness, proactiveness, need for achievement and risk-taking (Morris & Kuratko, 2002:39; Nieman & Pretorius, 2004:20; and Rauch *et al.* 2004:165).

This study resonates with the contributions made by researchers on the five dimensions to entrepreneurial orientation. In addition, to this, focused knowledge is added as another dimension. The argument for this addition is that knowledge is regarded as a means to a reliable and lasting source of competitive advantage. Due to creation and maintenance of a continuous flow of knowledge streams within the veins of a company, a knowledge capital is built that can take advantage of innovations.

The construct, CE Orientation arises from contributions in literature relating to the entrepreneurial orientation and CE review (refer to Figure 1.8). CE Orientation is taken to encompass autonomy, innovativeness, proactiveness, need for achievement, focused knowledge and risk-taking. The study adopts the view that the ingredients essential for increasing the levels of entrepreneurship activity within corporate borders, which stem from the abilities, knowledge, skills, attitude and personal attributes inherent in an entrepreneur.

Figure 1.8: Corporate Entrepreneurship drivers



Source: Own compilation

1.5.3.1 Risk-taking

The work of Cantillon (1931:47) made a significant contribution into the fray of entrepreneurship by developing the term and an entrepreneur as a person who bears the risk of profit or loss of a venture. Consequently, risk-taking has been viewed by several authors as representing a fundamental element of entrepreneurship. Some authors deem it a factor that is inextricably linked with entrepreneurship and innovation (Evans, 2000:249). In this regard several dimensions of the risk-taking propensity present itself in firm level activity. These range from the quick pursuit of opportunities, fast commitment of resources, bold actions and experimentation (Covin & Slevin, 1991:7; Hisrich, Peters & Shepherd, 2004:225; Lumpkin & Dess, 1996:135; and Timmons & Spinelli, 2003:172).

Morris and Kuratko (2002:41) advance that risk-taking involves a willingness to pursue opportunities that have a reasonable likelihood of producing losses or significant performance discrepancies. They indicate that moderate and calculated risk-taking can be viewed as an individual-level trait that involves a willingness to pursue opportunities that have an effect on the organisation. The perceptions of opportunities impel entrepreneurs towards translating their ideas into action which result in uncertainty and risk. Dess and Lumpkin, (2005:4) suggest that having an inclination or skew towards risk in a given venture means that firms are in a position to exploit opportunities. Their stand is that such firms must make decisions and take steps, even in the face of uncertainty or competitive threats as a bias for their action.

On the basis of the above discussions, the study recognises that corporate entrepreneurs would take calculated risks to bring their project to fruition. This aspect is therefore viewed as a separate dimension that enhances CE Orientation. It can therefore be deduced that risk-taking is a commitment to experimentation in the face of uncertainty. For this reason the study observes that risk-taking of corporate entrepreneurs is related to how innovations take place (through exploitation or exploration) within corporate borders.

1.5.3.2 Proactiveness

An organisation would attempt to lead rather than follow competitors in key business areas such as introduction of new products or services (Covin & Slevin, 1991:8). Essentially, the orientation of proactiveness imposes itself as an expression in anticipation of, and action

taken, on the basis of future needs. Burns (2005:28) notes that entrepreneurs tend to be proactive in the sense that they seek out opportunities and do not rely on luck. He states that they act quickly and decisively to make the most of opportunity before someone else does as this is the only way to achieve success. He further adds that patience is certainly not a virtue that many of such entrepreneurs possess and they act first then learn from the outcomes of their action.

The action of proactiveness is referred to by Morris and Kuratko (2002:44) as concerning the action of implementation, with taking responsibility and doing whatever it involves to bring an entrepreneurial concept to fruition. They note that pro-active achievers are more likely to break new grounds and become alert to opportunities. In this way, there will be an art of change embedded within the organisation that will propel the proactive behaviour of individuals to lead to innovations within corporate boundaries.

This study notes that proactiveness portrays a commitment to implementing new business processes which are designed to cultivate new markets for the firm's offerings. From a dimensional perspective to CE Orientation, the study views that actions of entrepreneurs will encompass the art of pioneering and initiative taking. It therefore affords two perspectives to the CE Orientation which encompasses forward looking and opportunity seeking perspective which may contribute to a firm's exploration effort.

1.5.3.3 Need for achievement

Dess and Lumpkin (2005:4) observe that competitive aggressiveness requires intense action that is aimed at outperforming industry rivals and is characterised by combative posture and/or assertive response. Burns (2005:29) observes that entrepreneurs are driven by a strong inner need to achieve. He asserts that they enjoy doing their challenging work often to the exclusion of other things. To this end, they often are self-motivated, committed and determined to succeed. Bridge, O'Neil and Cromie (2003:63) concur that enterprising people have a strong need for achievement (nArch), which stimulates them into action. They advance the argument that achievement oriented people become entrepreneurs or enterprising individuals by having the ability to see and act on opportunities.

McClelland was influential with the suggestion that a high nArch leads to a more proactive search of the environment and the desire to take calculated risks (Deamer & Earle 2004:100). McClelland's work done in 1953 suggests that associated characteristics of the achievement motivation include doing things in a new and better way and taking calculated risks (McClelland, 1976:207). Achievers initiate successful actions by setting and achieving standards previously not met. This involves working relentlessly towards the set standards and obtaining knowledge or feedback on the status of the work done. Achievers tend to shun routine tasks and concentrate on aspects that are challenging. Subjects with a high nArch, do not overestimate their probability of success by innovating actively and constantly. They work harder when it counts for personal achievement especially when their personal efforts will make a difference in the outcomes. Fynn (2005:29) notes that nArch is centred on the expectations of doing something better or faster than anybody else or better than the person's earlier accomplishments and with less effort.

The study adopts the view that an important aspect of having a self motivation embedded within ones self-image stimulates an inner drive towards succeeding. In this way, the achievement motive ignites a compulsive behaviour towards a process of planning and striving for excellence. It is therefore presumed that individuals with a high nArch (or competitive aggressiveness) will act entrepreneurially and therefore exploit and/or explore opportunities by producing more innovations.

1.5.3.4 Focused Knowledge

Burns (2005:63) postulate that entrepreneurs learn by doing, and they learn quickly not to repeat mistakes but to capitalise on success. In this way knowledge is transferred continuously, quickly and without barriers. Ireland, Hitt and Sirmon (2003:975) add that the focus on the learning process will therefore nestle on those individuals who are more closely involved with the introduction of new products or services.

Dovey and White (2005:247) advances the view that creating an innovation culture where knowledge is valued and shared effectively is one of the most difficult challenges faced in practice. Fiet (2002:93) adds to this by contending that possessing the competence to discover and exploit information that is not generally assessable may hold the key to creating new wealth. His argument asserts that prior knowledge determines the entrepreneur's competence to make a specific discovery and circumscribes how and

where they can search. Thompson (2004:1093) underpins the notion that policy makers must appreciate that innovation is about people as well as product and processes. The impetus thus dawns on seeking to identify those people with great potential and to offer them encouragement. The avenue created is that of paying attention to thinking processes as well as managed innovation processes. Zikmund (2003:21) advances that knowledge is a blend of information, experiences and insights that provide a framework that can be thoughtfully applied when assessing new information or evaluating certain situations.

Garcia, Lorens and Verdu (2006: 39) establish that in understanding and managing the organisation, innovation becomes a vital capability that the organisation must learn. The research empirically reflects the need to strengthen different strategic factors/capabilities to achieve an adequate level of both organisational capabilities, improve performance and encourage entrepreneurship. More specifically, personal mastery, transformational leadership, shared vision, proactivity and environment helps an organisation to become more innovative and encourage more learning. The innovation transforming process is now regarded as a learning process for organisations (Chermin & Nijnof, 2005:136). This is derived from the stand point that this aspect of knowledge creation is perceived as one of the major assets of innovative organisations and that innovative organisations are defined by knowledge creation. McGrath and Macmillan (2000:233) cements this aspect by indicating that in situations of highly uncertain ventures, the proportion of assumptions one needs to make relative to the knowledge one has is considerable.

From the discussions above, the study observes that focused knowledge appears to be an important lubricator to organisation learning. In an atmosphere where it is prevalent, the commitment sought would be to inculcate an essence of self-directedness and independence in the generation and implementation of new ideas. From this perspective, the study alludes that focused knowledge of corporate entrepreneurs in an organisation will lead to a high level of innovation through an exploration and exploitation processes.

1.5.3.5 Autonomy

Dess and Lumpkin (2005:429) observe that autonomy refers to independent action by an individual or team aimed at bringing forth a business concept or vision and carrying it through to completion. They note that firms that wish to explore venture opportunities must

create an environment where innovation team members are free to explore possibilities without the influence of strategic norms or organisational traditions that may impede the discovery process.

Voss, Voss and Moorman (2005:1136) suggest that entrepreneurial behaviour is often generative and creative involving the autonomous actions of organisational actors. Employee autonomy is a commitment to encouraging employees to be self directed and independent in the generation and implementation of novel ideas. They argue that it is for this reason that autonomy is thought to be an essential element of the entrepreneurial orientation construct. Thus, they note that it is the independent action undertaken by entrepreneurial leaders or teams directed at bringing about a new venture and seeing it to fruition. Nieman and Pretorius (2004:20) make the observation that entrepreneurs do not like to be tied down by rules and regulations of traditional jobs. It is for this reason that they prefer the latitude to explore opportunities in their own space.

Given these viewpoints, the study makes the observation that autonomy is a dimension that would greatly influence CE Orientation. Entrepreneurs working within corporate borders would require feeling autonomous in what it is that they do to give them the latitude to explore or exploit innovative ideas free from organisational norms. It is for this reason that the study suggests that entrepreneurs with a high level of autonomy will lead to higher levels of innovation in an organisation. Innovation, which is one of the drivers, will be discussed and explained later in this Chapter (Section 1.9).

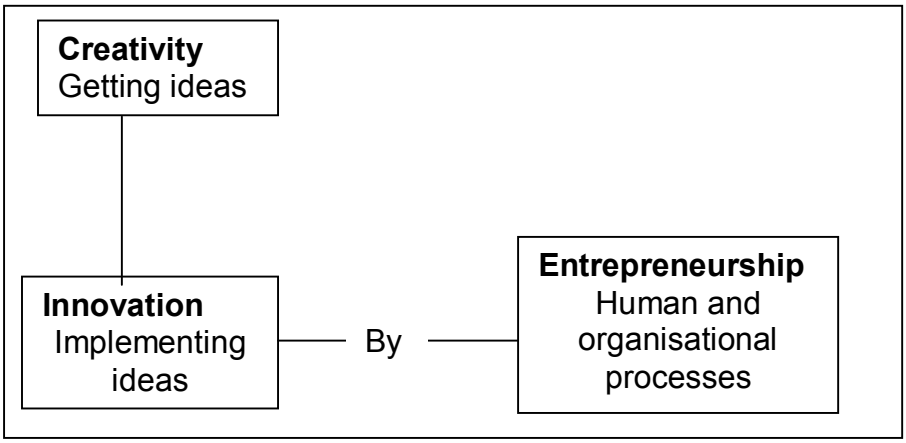
1.5.4 The need for Corporate Entrepreneurship Orientation

Evans (2000:249) suggests that if a large company wants to develop an entrepreneurial spirit, it has to establish an environment that allows mistakes and failures in developing new, innovative ideas. Through this process entrepreneurs are bred in organisation. An organisation must therefore develop the abilities, knowledge, attitudes and attributes in their employees as a means cultivating CE in their organisation. The vehicle that facilitates this invariably nestles in the CE Orientation of the organisation. The dimensions of CE Orientation discussed above afford the organisation the leverage to greatly enhance the level of entrepreneurship inherent in the organisation and with it innovative capacities and capabilities.

1.6 CREATIVITY AND INNOVATION WITHIN CORPORATE BORDERS

Creativity and innovation have been viewed by many authors as two major components for entrepreneurship. For this reason, they have stressed the importance of creativity in the process of invention (Bolton & Thompson, 2000:14; Struwig 2003:352). Struwig (2003:352) draws a distinction between innovation, creativity and entrepreneurship as shown in Figure 1.9. The distinction brings to bear that the concept of creativity deals with getting an idea, while innovation relates to the implementation of the idea. Entrepreneurship, on the other hand is seen as requiring innovation. The dynamism of the three concepts clearly indicates that creativity precedes innovation as the latter cannot exist without the former. It also establishes that the act of entrepreneurship is the driving force in bringing innovation to fruition.

Figure 1.9: Distinction between Creativity, Innovation and Entrepreneurship



Source: Struwig (2003:352)

1.6.1 Creativity and Innovation defined

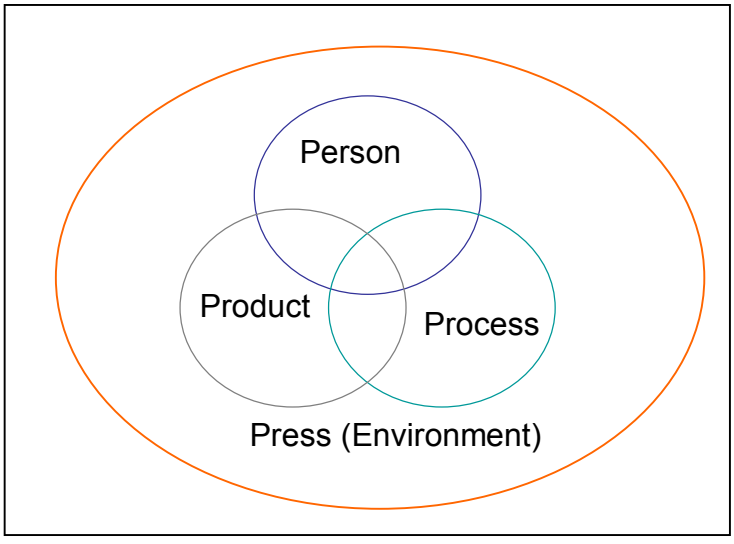
Burns (2005:267) indicates that creativity is essential in an entrepreneurial organisation. He suggests that creativity leads to innovation and entrepreneurship drives the whole process. In his view, therefore, creativity is the very soul of entrepreneurship. Bolton and Thompson (2000: 157) add to this view by asserting that creativity is the starting point of opportunity and is turned to practical reality through innovation. Creativity can be described as the process through which innovation occurs. Creativity thus occupies the role of an enabling process by which something new comes into existence. To create a viable innovation, the creative idea must be identified and accompanied by a viable means of converting the idea into a needed product or service.

From the above contributions, it is apparent that creativity must be encouraged within a firm since creative people need freedom in the way that they work and the resources they control. Bamber *et al*. (2002:204) suggests that innovation is traditionally defined as the successful implementation of creative ideas. Creativity is construed to be the nexus of innovation and becomes a necessary condition for innovation to occur. The study therefore deduces that creativity underpins innovation and innovation underpins enterprise.

1.6.2 The creativity model

The 4P model proposed by Couger (1995:4) is noted as a basis of its applicability to entrepreneurial creativity. As reflected in Figure 1.10 below, this model takes the variables of person, product, process and press to individually and/or collectively relate to creativity. It therefore implies that attention can be given in varying degrees to these variables to improve creativity in organisations. Antonites (2003:79) reflect on and confirm the work contained in the 4P model.

Figure 1.10: The 4P model of creativity



Source: Couger (1995:4)

The variables indicated in this model are briefly discussed below as a means to understanding the theory on creativity and innovative actions and activities those entrepreneurs can employ as a tool to enhance their competitive advantage.

1.6.2.1 Person

The entrepreneur within a company is noted as an important variable in that they have a knowledge base and/or entrepreneurial skill that drives the creativity process. These capacities dwell on their learning abilities to conceptualise creativity. To this end, the entrepreneurs have to demonstrate their intelligence, cognition and personality.

Amabile (1999) is quoted by Antonites (2003:49) as having analysed three components of creativity namely expertise, motivation and creative thinking skills. Expertise, which can be acquired by various means, includes the knowledge, experience and talent a person can use to apply in a certain situation. Motivation, which determines the level of success, refers to the inner drive and determines what creative people will do and whether they will do it. Creative thinking skills demonstrate the manner in which abstract combination of unrelated elements can be brought to bear.

1.6.2.2 Process

Creativity is embedded in a continuous process in which new initiatives, products or services are created. Martins and Terblanche (2003:68) suggest that creativity traverses various stages from conception of an idea through to implementation. Firstly is an idea generation stage where a multitude of ideas are proposed. In the second instance, a most suitable and/or feasible idea is developed to ensure that it can be commercialised. Finally, the new idea is transformed into an invention releasing a new product, service or process.

1.6.2.3 Product

The products of companies are as a result of the creative process that is described above. These products are the culmination of the integration of creative people as well as the creative process they explore and/or exploit.

1.6.2.4 Press

The press refers to the environment in which creativity is found. In their study, Ahuja and Lampert (2001: 521) propose that for an organisation to be more innovative, it may best be managed in an entrepreneurial way that cuts across conventional organisational

boundaries. The organisation may be made the responsibility of a particular cross-disciplinary team that operates with entrepreneurial flair and a winning tradition.

Following the advances noted above, the study notes that creativity may be an elusive quarry. This section of the study therefore looks at the relationship between creativity and innovation and that between entrepreneurship and innovation for purposes of building a foundation of the innovation variable under study. The study also explores the manifestation of innovation within corporate borders, as well as the innovation process inherent therein.

1.6.3 Entrepreneurship, Creativity and Innovation

The works of Joseph Schumpeter in 1934 strongly provides a conceptual relationship between entrepreneurship and innovation (Zhao, 2005:25). Schumpeter viewed entrepreneurship as a creative act and an innovation. He maintained that innovation contributes to the growth of the economy because entrepreneurs produce innovations in the introduction of a new or improved good or service; the introduction of a new process; the opening up of a new market; the identification of new sources of supply of raw materials or the creation of new types of industrial organisations. After Schumpeter's work, the acceptance of entrepreneurship activities with innovation became profound.

The emphasis of entrepreneurship activity as a process stimulating innovation has received the attention of several authors (Kelley, Neck, O'Conner & Paulson, 2002:558; and Stevenson & Carrillo, 1990). These views concur with Schumpeter's (1934) observation, which supports entrepreneurship as the prime catalyst of innovation.

Zhao (2005:26) suggest that entrepreneurship is viewed as a creative act and innovation. The view is complimented by Wickham (2004:366) who advances that innovation lies at the heart of the entrepreneurial process and is a means to the exploitation of opportunity. Innovation is also regarded as the tool or instrument for entrepreneurship (Jun & Deschoolmeester, 2003:2; and Maurer, Shulman, Ruwe & Becherer, 1995:524). To this end, it can be deduced that innovation is the specific function of entrepreneurship and can be broadly defined as the common theme underlying all forms of entrepreneurship.

Carrier, Cossette and Verstraete (2000:121) indicate that for enterprises to survive and flourish in a competitive and increasingly demanding world, some high degree of creativity and innovation is a prerequisite. Shepard and DeTienne (2005:1) support this viewpoint adding that a continual identification of new opportunities beyond existing competencies is required.

With respect to innovation, this study lays emphasis on concepts or activities that represents a departure from that which is currently available as defined by Mintzberg (1983:934) as "the means to break away from established patterns". This aspect of innovation revolutionises patterns of new products. For purposes of this study the encapsulation of pursuit of innovation within the company borders is pursued.

1.6.4 Creativity and Innovation within company borders

A number of researchers have pitted creativity and/or innovation as the focus of corporate entrepreneurship activities (Zhao, 2005:28). The academic contributions made in this respect suggest that corporate entrepreneurs are innovators, whose innovations encapsulate a range of new products, markets or processes. Thus innovation mirrors on a harvest of and commitment to generating and culturing new ideas that result in new products.

Drucker (2001:278) proposes that the entrepreneur always searches for change, responds to it, and exploits it as an opportunity based on purposeful innovation. Opportunity recognition can therefore be seen as the core attribute of EO. In this light, the innovative use of resources to pursue opportunities therefore becomes an imminent component by which organisations must thrive. The basis for innovation is therefore the recognition of future trends and new approaches.

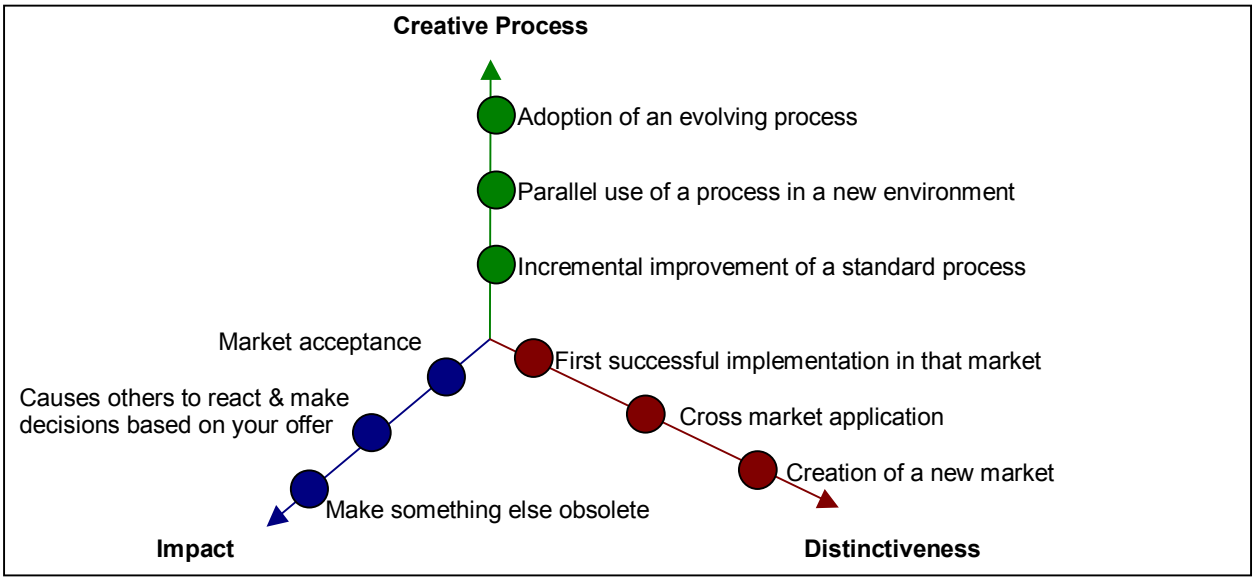
Within the corporate fray, the competitive environment asserts pressure for a continuous need to adapt, develop and innovate. Leavy (2005:39) advances the view that the competitive environment in which corporations operate, reveals the need to mine the full innovative potential at their disposal thereby harnessing the ingenuity of its employees as a means to leveraging the corporation for success. Brazeal and Herbert (1999: 29) advance the view that innovation can be viewed as a process or an outcome. They

suggest that as a process, innovation is depicted as continuous and cyclical, involving stages of awareness, appraisal, adoption, diffusion and implementation.

1.6.5 The Innovation Process

Chen and Ho (2002: 2) propose an innovation process model in which they state that for something to qualify as a true innovation it must meet three criteria in a sequential manner. First, it must engage in a creative process as a result of environmental scanning. Second, it must be distinctive and it must yield a measurable impact in terms of its application in the market place. Finally, an enterprise must be able to assess whether something is an innovation or not and whether it does yield a measurable impact. These processes are depicted in Figure 1.11. The model allows the enterprise to obtain a view as to the direction of the innovation from these three perspectives. In general, the more non-linear and innovation is the more complex the management of the innovation becomes.

Figure 1.11: The Innovation Spectrum



Source: Chen and Ho (2002:7)

This process is useful to the study as it draws the angle of how the company becomes pro-active to changes and the essence of building in self-renewal, which allows the company a strategic re-alignment with products in the market place.

1.6.6 Pursuing innovation within corporate borders

The role of innovations in organisations is vital and is considered as the first dimension that characterises an entrepreneurial organisation (Kuratko & Welsch, 1994:359; and Morris & Kuratko, 2002:39). Given such an environment in the corporate perspective, it can be said that personal initiatives breeds an atmosphere of innovation and the implementation of such innovation programmes leads to inculcating entrepreneurship into the corporate fray and thus setting ground for architecture of the entrepreneurial organisation.

Ahmed (1998:45) highlights the critical importance of innovation to the organisation's success. The study introduces the thesis that as competitions intensifies in the market place and life cycles shorten, the pressure to innovate heightens. The entrepreneurial activities drive the key factors that enable the organisation to continuously adapt, develop and innovate thus becoming a basic building block for organisational excellence.

The need to innovate is an essential requisite for improving organisations and making them more entrepreneurial and competitive. In this regard, continuous innovation must flow through the organisation unabated. This study therefore deduces that innovation is linked to entrepreneurship through the relationship of the dynamics of the entrepreneur's attitudes, vision and actions. This linkage produces synergy that propels the organisation's ability to adapt, develop and innovate.

1.7 LINKING CREATIVITY AND INNOVATION TO CORPORATE ENTREPRENEURSHIP ORIENTATION

From the review of literature above, it has been established that entrepreneurship is intricately linked with innovation. It is the belief of most researchers that firms with a strong EO will pursue innovation goals more efficiently (Dess and Lumpkin, 2005: 4; and Pavitt, 2005:88). In this study, the organisation's CE Orientation is examined and defined with respect to the organisation's entrepreneurial architecture emerging from the corporate entrepreneur's innovation. The study's interest is in focusing on the advent of individual's initiative and innovativeness within a corporate organisation, which culminates in the creation of an entrepreneurial organisation. Dess & Lumpkin (2005:3) suggest that firms

that exhibit a strong entrepreneurial orientation may have an advantage when it comes to understanding innovation via exploration and exploitation activities. They note that successful innovation is often complex and requires that firms exhibit multiple talents and competencies. They further make the observation that the concept of exploration and exploitation captures the breadth of activities that firms must be capable of innovating successfully. These activities encompass, but are not limited to scanning, experimentation, new product development and organising work activities. The study adopts the views of McGrath and Macmillan (2000: 232) to the effect that many firms that are successful innovators attribute much of their success to an entrepreneurial orientation. In order to amplify this angle of thought, theoretical backgrounds to this are explored.

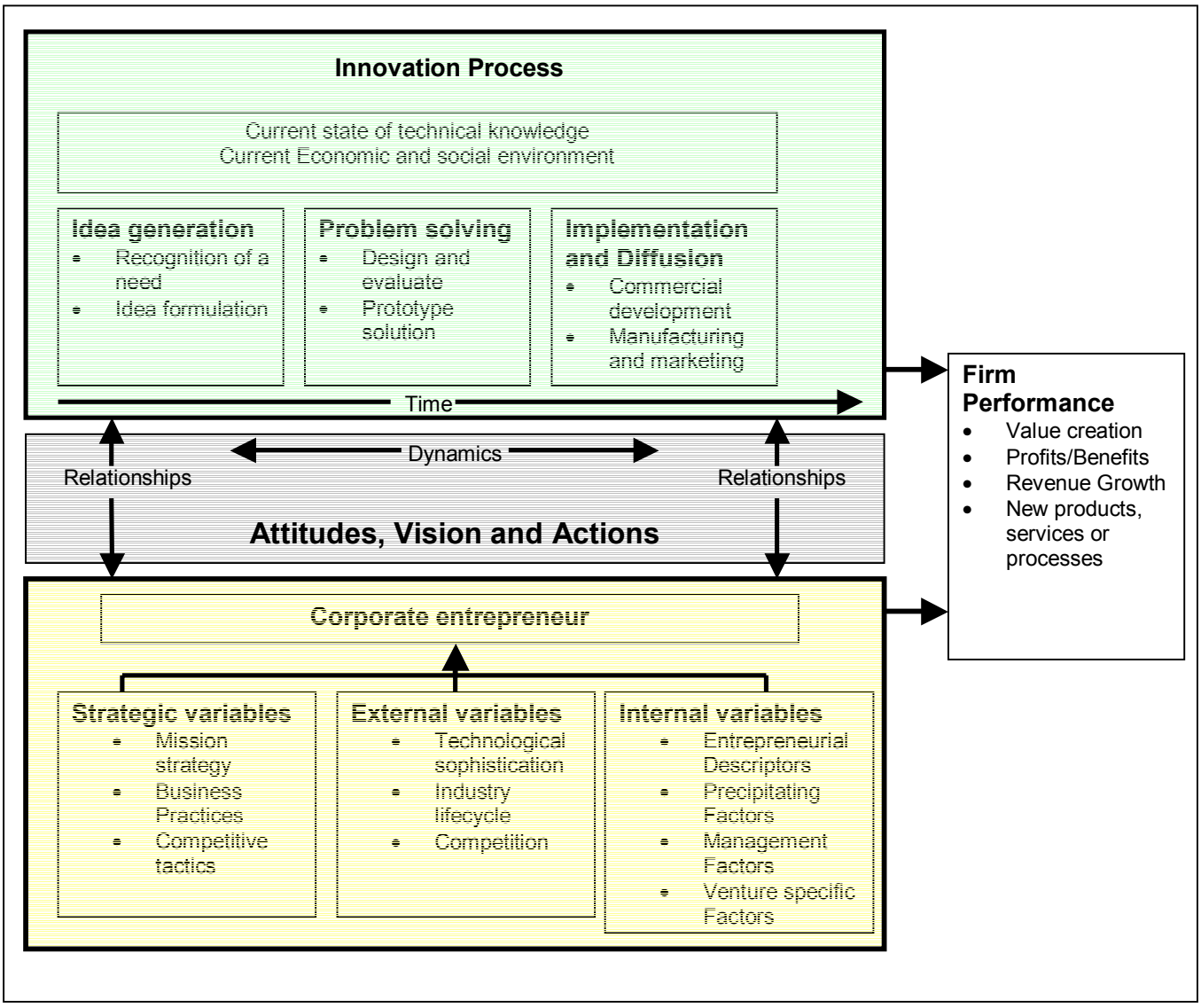
The contributions by some researchers assert that there has been no consensus in defining entrepreneurship and innovation (McFadzean *et al*., 2005:351; and Zhao, 2005:26). It is therefore acknowledged that there is a plethora of literature in this respect with diverse views. Morris and Kuratko (2002:39) point out that the first dimension that characterises an entrepreneurial organisation is innovativeness. Innovativeness in this respect means the development of novel or unique products, services or processes. This study adopts the view that entrepreneurship activity produces the ingredient that lubricates the link between innovation and corporate entrepreneurship orientation towards the architecture of an entrepreneurial organisation.

Zhao (2005:25) investigates the relationship between entrepreneurship and innovation. He takes a qualitative approach in exploring the synergies between entrepreneurship and innovation and in analysing the factors that foster an interaction between the two through case studies of six entrepreneurial and innovative companies. The result of his study reveals that entrepreneurship and innovation are positively related to each other and interact to help an organisation to flourish. He further establishes that entrepreneurship and innovation are complimentary and a combination of the two is vital to organisational success and sustainability to today's changing environment. The indicative premise is that innovation has to address market needs, and therefore corporations require entrepreneurship if they are to achieve commercial success.

McFadzean *et al.* (2005: 350) examines the literature on corporate entrepreneurship and innovation. They develop a holistic model that attempts to explain the links between

corporate entrepreneurial activity and the innovation process. The model discusses three factors that may explain both the dynamics and relationship between the entrepreneur and the innovation process. The gaps identified in developing a combined relationship between the two are the attitudes, vision and action as represented in Figure 1.12.

Figure 1.12: Linking entrepreneurship with innovation: Attitudes, vision and actions



Source: McFadzean et al. 2005:372

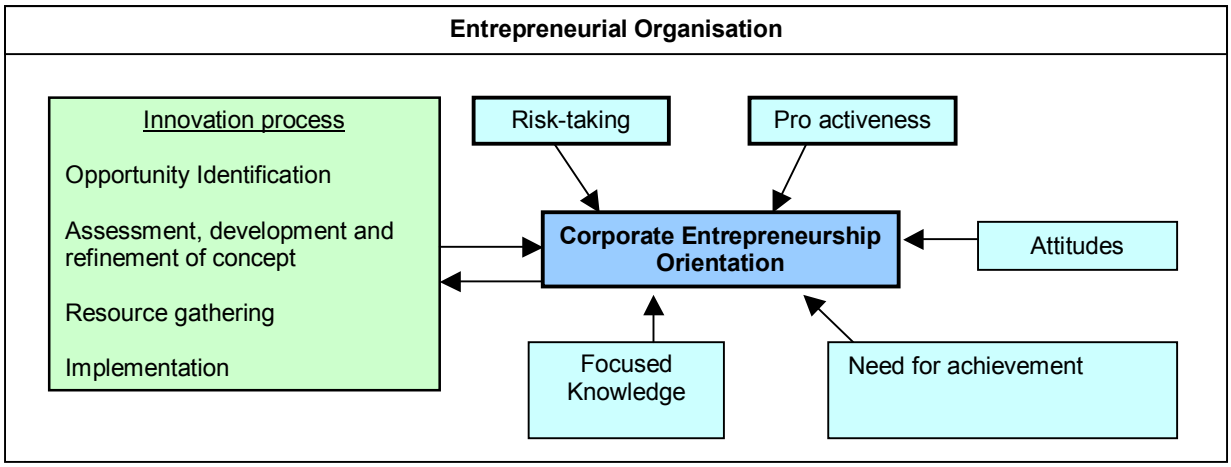
From the above discussions, the study views that a linkage between CE Orientation and innovation can be established. This link provides a basis for the study framework.

1.8 OUTLINE OF THE STUDY

1.8.1 Study Framework

Following the literature review, the study postulates that CE Orientation and innovation are connected to each other and have a positive correlation with each other. It is deemed that the higher the CE Orientation is within the organisation, the higher the innovations will be. For this purpose, the study builds a framework which is used to depict the relation of the constructs and variables under study as shown in Figure 1.13.

Figure 1.13: A study framework linking corporate entrepreneurship with innovation



Source: Adapted from Morris and Kuratko (2002: 30).

The above framework identifies the variables that, when put together, promote the level of entrepreneurial activity in a corporate setting and by so doing increases the CE Orientation. It is postulated that the inherent CE Orientation when linked with the innovative process of the organisation culminates in new products being produced for the market place. This process of producing products emanate from the exploitation and exploration processes given rise to by CE Orientation.

1.8.2 Importance of the study

The study has several pertinent academic and practical significances. Firstly, the findings of the study would help firms appreciate the importance and development of entrepreneurial organisations within corporate boundaries. The essence in this respect is

that entrepreneurial activity inherent in an organisation raises immunity against complacency and bureaucracy and therefore raises the level of tapping into individual's knowledge capacity.

Secondly, the study findings would afford organisations the impetus of coping with a stream of a variety of simulated strategies and options initiated from the innovative wealth inherent in individuals, groups or processes. This angle would open avenues of how such organisations will effectively and efficiently assert themselves in the competitive arena in which the organisation operates.

Thirdly, breeding entrepreneurial activity within corporate borders also affords the organisation new and innovative ways of responding to the windows of opportunities that enhances their potential for growth.

Finally, the research findings of the study would determine if organisations can indeed create competitive advantages by aligning a strategic fit between its strategies, structures and processes.

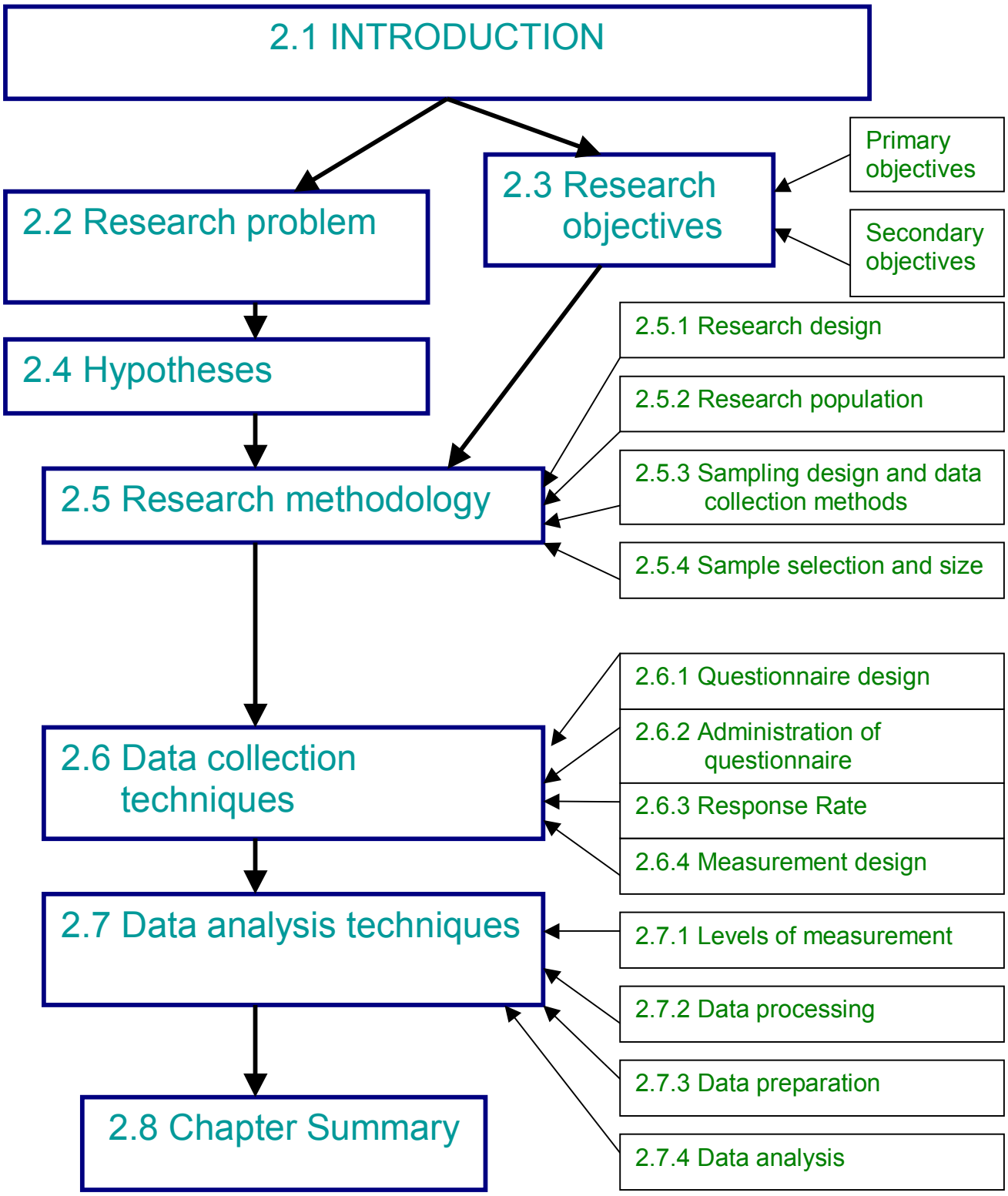
1.8.3 The structure of the dissertation

Chapter 2 mirrors on the research design as well as the research methodology from which the study is formulated. It indicates the study's architectural framework which underpins the route map taken to investigate and study the relationships of the study variables.

Chapter 3 reflects on the in-depth analysis of the data derived from this study arising from the research problem and objectives postulated. In particular, the variables portending to represent the corporate entrepreneurship orientation are analysed.

Chapter 4 presents the summary of the confirmed results of the study based on the empirical information obtained. It also engages discussions on the findings on the study, limitations to the study and draws a conclusion thereof. It also provides the inherent implications the study brings to bear as well as recommendations for future research.

CHAPTER TWO: RESEARCH DESIGN AND METHODOLOGY



2.1 INTRODUCTION

This study is conducted to provide an understanding of the relationship between CE Orientation and the pursuit of innovation. In Chapter 1, a general theoretical background was explored and a strategic framework built to bridge the research question and the execution or implementation of the research. This Chapter concerns with providing research strategy that specifies how the research is executed to address the research question posed. Research strategy is described by several authors as comprising a general plan of how a researcher goes about answering a set research question and the methods employed to achieve such a process (Cooper & Schindler, 2006:138; Saunders, Lewis & Thornhill, 2000:90 and Welman, *et al.,* 2005:2).

This section of the study provides a plan that specifies how the research is structured to answer the research question. Specifically,

- The research question is defined;
- The research process is designed;
- Data collection procedures are designed; and
- Data analysis is designed.

The first part of this Chapter describes how the research question is derived by narrowing down the context and focus of the research problem and constructing the study variables. The objective which the study aims to achieve is then described in cohesion with the research question. Hypotheses statements are then developed as a means to direct the investigation of the variables under study and articulate how these measures are carried out. In the second part, the architecture of the research design stipulates the research methodology as the general implementation and execution plan. This encompasses the data collection design, sampling design and the instrument design. The third part concentrates on data collection procedures where the data collection instrument is described and its validity and reliability outlined. In the final part, the data analysis procedures are indicated.

2.2 RESEARCH PROBLEM

The research problem in this study is to determine if there is an inherent CE Orientation within the corporate boundaries of the organisations operating in Botswana which results in the pursuit of innovation. The essence of this study is modelled around a CE Orientation framework that is presented in Figure 1.13 in the literature review in Chapter 1. The purpose, research question and research importance are therefore developed as follows:

2.2.1 Purpose of this research

The purpose of the study is about providing an understanding of the link between the CE Orientation on the one hand and the innovation process on the other that transpires within corporate boundaries. Innovation is used as a dependant variable (DV) and CE Orientation as an independent variable (IV). This permits comparisons within the domain of the IV to determine whether CE Orientation has an impact on pursuit of innovation within a corporate environment. The extent to which there is a correlation between these variables is measured using statistical techniques designed for this purpose.

2.2.2 Research Question

The research question posed is that do companies in Botswana have a corporate entrepreneurship orientation which results in the pursuit of innovative opportunities?

2.3 RESEARCH OBJECTIVES

The study has formulated primary and secondary objectives as indicated below to guide the study.

2.3.1 Primary Objective

The primary objective of this study is to look at the extent of the inherent manifestation of CE Orientation in companies in Botswana and its linkage to the pursuit of individual employee's innovation within corporate boundaries.

2.3.2 Secondary Objectives

Following from the primary objective, the study developed secondary objectives, which were to determine the following:

- Identify the prerequisites and factors of CE Orientation;
- Identify the individual employee's perceptions and importance of innovation factors in established companies; and
- Examine the relationship between CE orientation and innovation.

2.4 HYPOTHESES

From the literature review identified in Chapter 1, the study deduced that there was a testable relationship between the levels of CE Orientation inherent in individuals within a corporate organisation and the pursuit of innovative by individuals demonstrated by these individuals. A relationship is described in the English Oxford dictionary as "a significant connection or similarity between two or more things". The study therefore formulates three hypotheses statements from the research question to measure the value of the described relationship as follows:-

$H1_o$ Individuals with a low CE Orientation will not pursue innovation opportunities that make organisations entrepreneurial.

$H1_a$ Individuals with a high CE Orientation will pursue innovation opportunities that make organisations entrepreneurial.

$H2_o$ Individuals who have a low perception of the innovative factors will not pursue innovation opportunities that make organisations entrepreneurial.

$H2_a$ Individuals who have a high perception of the innovative factors will pursue innovation opportunities that make organisations entrepreneurial.

$H3_o$ There is no relationship between CE Orientation and the pursuit of innovation.

$H3_a$ There is a relationship between CE Orientation and the pursuit of innovation.

Zikmund (2003:44) suggests that a hypothesis is a proposition that is empirically testable. He further states that it is an empirical statement concerned with the relationship among variables. Welman *et al.* (2005:12) compliment this by adding that a hypothesis is a tentative solution or explanation of research problems and the task of research are to investigate it. The study therefore builds correlations testable by means of inferential statistical measures based on the factors designed for the study. The correlations sought are summarised in Table 2.1.

Table 2.1: Correlation sort from Hypothesis

Correlation sought	Hypothesis
The level of introduction of new innovation by individuals with their CE Orientation	H_1
The level of introduction of new innovation by individuals with their pursuit of innovation	H_2
The relationship of CE Orientation with the pursuit of innovation	H_3

Source: Own compilation

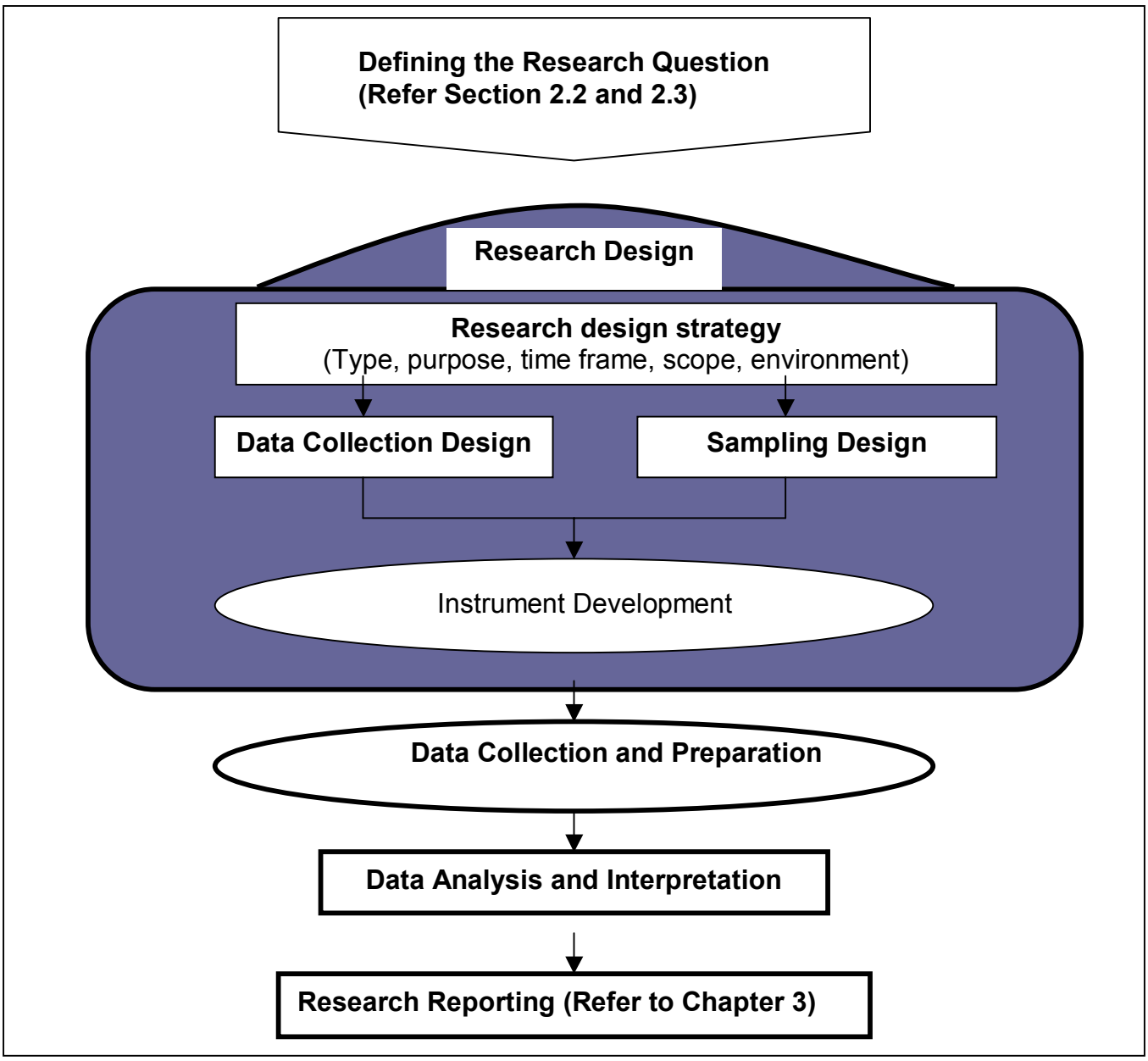
The hypotheses testing are reported in detail in Chapter 4. The one-tailed measure is applied to test the hypothesis and a significance level (reported on in Chapter 3) of 0.05 is used.

2.5 RESEARCH METHODOLOGY

The architectural process of the research methodology adopted by the study follows the logical and progressive sequence of research process as outlined in Figure 2.1 below. Welman *et al.* (2005:2) describe research methodology as the process of considering and explaining the logic behind research methods and techniques which allow the means to explore a phenomena. Cooper and Schindler (2006:31) add to this by stating that through the use of methods and techniques that are scientifically defendable, we may come to the conclusions that are valid and reliable.

The research design presented below is preceded by the research problem statement, objectives and hypotheses in which a formal question to direct the study is developed.

Figure 2.1: Design in the research process



Source: Adapted from Cooper and Schindler (2006: 136).

2.5.1 Research design

The study recognises that the research design refers to the nature, kind or type of research following the essentials of research design proposed in Figure 3.1. A concise notation is constituted from which follows indications of the designed methods and procedures for the collection, measurement and analysis of data. In determining the research design, the study explores its premise based on the research time dimension,

research intention, the degree to which the research question has been crystallised, the nature of data, and the source of data. These are briefly commented on as follows:

2.5.1.1 Time dimension

In carrying out research, there has to be a determination as to the time dimension of the study. Those studies that are carried out once and represent a snapshot of one particular point in time are considered cross-sectional studies (Cooper & Schindler, 2006:141). This study adopted the design of looking at the variables from a standpoint in time hence its consideration as a cross-sectional study. Longitudinal studies on the other hand are those that are continuously repeated over an extended period of time and involve examining the same group at different time intervals (Welman *et al.*, 2005:95).

2.5.1.2 Research intention

Collins and Hussey, (2003:13) indicate that basic and applied research designs are the two frameworks assigned by authors to depict the research intention. They point out that the difference inferred from these two is embedded on the intention of the researcher in undertaking the research. Basic (or academic) research is applied to problems that are not of a specific nature and is done to satisfy the researcher's curiosity or thirst for knowledge, without emphasis on its immediate application. Applied research is done in order to solve a particular existing problem. This research is modelled to achieve academic knowledge and therefore is designed as an academic (or basic) research.

2.5.1.3 Degree of research question crystallisation

Cooper and Schindler (2006:139) view a study as exploratory or formal based on the degree to which the research question has been crystallised. Exploratory studies assume a loose structure with the aim of making discoveries in the process of the study and in the process emerging future research tasks unfold. The formal studies on the other hand are extremely structured with well formulated research questions and directedness towards answering certain questions. This study is therefore a formal study having regard to the extent to which the research question has been crystallised. It is also formal in nature since it incorporates a substantial developed structure which portends to test the relationship between CE orientation and the pursuit of innovation.

2.5.1.4 The nature of data

The nature of data gives rise to quantitative and qualitative research designs (Coldwell & Herbst, 2004:13). Welman *et al.* (2005:2) note that quantitative research involves collecting data from a large number of study units by relatively structured and predetermined questions and is usually done for and is quite appropriate for testing hypotheses. This study measures variables or count occurrences of the item being researched and therefore adopts the quantitative approach. Durrheim (2006:47) indicates that qualitative research on the other hand relies on data mainly of ideas and themes rather than quantities. The content of the data or information collected in qualitative research is what is important rather than the numbers or proportions associated with the factors about which the data collected is all about.

2.5.1.5 The research design adopted

This study seeks to obtain quantifiable measures between the CE Orientation construct and the Innovation construct and therefore employs the quantitative methodology in its approach. In adopting a formalised, cross sectional research design, the study devised a plan by which the study is to be carried out. The research is carried out through a theoretical and exploratory survey and is empirical in nature. The survey is conducted through a survey instrument in the form of questionnaires intended for 100 individuals at supervisory and above who serve as the research subjects. The questionnaire used helps in determining the factors effective to the study. The analysis created from responses received is used to determine the validity and reliability of the model.

2.5.2 Research Population

This study depicts the object of its study as the individuals working within the corporate enterprise as the corporate entrepreneur. The population of the companies where the entrepreneurs work is 234 (refer to section 2.5.4.1). A clearly defined population helps in ensuring that only the right sample units (elements within the sample) are included in the sample. Additionally, it also helps in ensuring that none who qualifies to be in the sample is denied a chance. Welman *et al.* (2005:53) describes research population as the full set of cases from which a sample is taken. It encompasses the total collection of all the units of analysis about which the researcher wishes to make specific conclusions. Wisniewski

(2006:205) eludes that in a statistical sense, a population relates to the entire set of items under consideration.

2.5.3 Sampling design and data collection methods

The sample frame was drawn from the total number of corporate firms with over 100 employees as was provided by the Central Statistics Office (CSO) in Botswana on 07 December 2006. Welman *et al.* (2005:59) indicates that the random sampling is the most attractive type of probability sampling.

Antonius (2003:118) describes sampling design as the procedure for selecting a sample that specifies the type of sample to be used, the number of units to be selected in the sample as a whole and the method for choosing the units. The concept of sample design is very important since researches involving samples are popular and the quality or value of research is very sensitive to the sample size and the manner in which the sample has been selected. It is for this reason that the following, which is used in this study, becomes of essence in the design of the selected sample (Diamantopoulos & Schlegelmilch, 2002:13; and Wisniewski, 2006:207):

- The ability to define the population of interest which is represented by the sample;
- The ability to determine whether the most appropriate research to do is a sample study rather that the whole population;
- The ability to ensure that the sample comprises the right sample units only;
- The ability to determine the right sample size for the research; and
- The ability to determine the most appropriate sample selection method for research.

Saunders *et al.* (2000:150) assert that sampling techniques provide a range of methods that enables a researcher to reduce the amount of data needed to be collected by considering data from the elements in the population frame. This yields what is commonly known and referred to as population sampling. Population sampling is defined by Wisniewski (2006:105) as a representative selection of some of the elements (subject on which the measurement is being taken) in a population. Zikmund (2003:369) adds to this by advancing that a sampling process involves a procedure using a small number of items or parts of the whole population to make conclusions regarding the whole population. A

sample is thus viewed as the emerging subset or some part of a larger population. It was imminent to define the sample of the study population as a means to providing a sufficient focus of the research efforts of the total study population.

According to Saunders *et al.* (2000:152), sampling techniques that are available can be divided into two types namely probability (or representative sampling) and non probability (or judgemental sampling). Probability sampling deals with and is based on the concept of random selection thereby affording the sample a random and equal chance of being selected. Non probability sampling, however, draws its sample arbitrarily thereby depriving the sample from a random selection. The latter therefore has a subjective approach (Cooper & Schindler, 2006:407). This study is concerned with the precision of the element selection and therefore adopts the probability sampling as its representation basis. The reason for doing so is because probability sampling methods require the use of sampling frames and statistical analysis which can be done to estimate population parameters from sample statistics. They also allow for tests of significance to be done on the results. The major types of probability sampling methods are indicated in Table 2.2.

Table 2.2: The major types of probability sampling techniques

Type	Description
Simple random sampling	Selecting items in a sample so that each member of the population has an equal chance of being included in the sample.
Systematic sampling	A sampling plan that selects items periodically from the population.
Stratified sampling	Applies to the population that are divided into natural sub sets (strata) and allocates the appropriate proportion of the sample to each stratum.
Cluster sampling	It is based on dividing a population into sub groups (cluster) and taking a random sample of the clusters.
Multi-stage sampling	Collecting data from a previously defined technique. Based on the information obtained, a sub sample is selected for further study.

Source: Adapted from Evans and Olson (2000:100)

Zikmund (2003:379) indicates that probability sampling is a sampling technique in which every member of the population has a known, non-zero probability of selection. Under such a process, the sample is drawn from a total population using appropriate methods that ensures that none of the selected sample is unduly included in the data set. Many authors consider the simple random sample as a special case in which each population element has a known and equal chance of selection (Coopers & Schindler, 2006:408; Welman *et al.*, 2005:56; and Zikmund, 2003:379).

A simple random probability sampling technique is applied to the sample frame. The study adopts the simple random sample selection to provide the elements within the population frame according each element an equal chance of being selected. This technique involves a four step process. First, the population frame is determined and each element assigned a unique number from 01 to 234. The second step involves determining the interval of element selection by taking the total number in the population frame and dividing it by the number of the sample required. Thus the population frame of 234 is divided by the required sample of 50 to give every 5th element as the element interval. The third step involves identifying a random start from within the first 6 elements. In this respect, random number tables were used and the 3rd element picked to represent the starting point. The last step entails selecting the sample. The sample is selected by taking the 3rd element as the first sample and picking every 6th item thereafter.

2.5.4 Sampling selection and size

The sample frame is drawn from the total number of corporate firms with over 100 employees as was indicated earlier. A sample frame is a complete list in which each of the unit of analysis is mentioned only once (Durrheim, 2006:49). According to Cooper and Schindler (2006:426), sampling is based on two premises. The first premise draws on the similarities among the elements in the population that will adequately represent the characteristics of the total population. The second premise presupposes that in a sample selected, some elements will underestimate the value attached to a population whilst others overestimate such a value. The resultant value derived from aspects like arithmetic means provides a good estimate of the population mean. To this end, it is therefore prudent to ensure that a good sample is selected in order for research to be meaningful. The study takes cognisance of the advances made by Cooper & Schindler (2006:404) that

a good sample contains the elements of both precision and accuracy. The precision calls for a sampling error that is within acceptable limits for the study's purposes. An accurate sample is obtained in a case in which there is little or no bias or systematic variances.

2.5.4.1 Sample size

The sample size was chosen correctly by ensuring that it is large enough, representative and randomly selected to allow a generalisation of the results of the population as a whole.

Table 2.3: Population and sample selection by province

Province	Town	Number of companies available (Total population)		Number of companies Selected by sample	
		Number	%	Number	% of total population
Central	Nata	1	0.42%	1	0.42%
	Orapa	3	1.28%	0	0%
	Palapye	4	1.70%	2	0.85%
	Selibi Phikwe	12	5.12%	2	0.85%
	Serowe	2	0.85%	1	0.42%
	Sowa Town	1	0.42%	0	0%
	Tonota	1	0.42%	0	0%
Chobe	Kasane	3	1.28%	1	0.42%
Klateng	Mouchudi	4	1.70%	1	0.42%
Kweneng	Letlhakang	1	0.42%	0	0%
	Molepolole	2	0.85%	0	0%
Ngamiland	Maun	5	2.13%	0	0%
North East	Francistown	25	10.6%	3	1.28%
Southern	Kanye	2	0.85%	0	0%
South East	Gaborone	154	65.81%	38	16.23%
	Lobatse	9	3.84%	1	0.42%
	Ramotswa	3	1.28%	0	0%
TOTAL		**234**	**100%**	**50**	**21.36%**

Source: Own compilation.

Table 2.3 indicates the sample size of individuals selected from the population frame categorised into the respective provinces. The sample size refers to the number of sample units that constitute the sample. The sample size of a study is important for the reasons that (Welman *et al.*, 2005:70):

- It affects the confidence or faith attached to the results of the study;
- Certain statistical analysis require that the cases included in the analysis should not below a certain number;
- It determines the statistical significance of statistical tests; and
- For accuracy, there is a certain margin of error researchers can tolerate.

2.6 DATA COLLECTION TECHNIQUES

Data collection refers to the specific ways of collecting the data and the specific criteria for determining what good data is. Morris (2003:252) advances that a questionnaire becomes an instrumental vehicle with which to infuse measurement in quantitative research. The study therefore adopted a questionnaire survey to the study.

2.6.1 Questionnaire design

The study recognised that data collection methods rely on questions as the vehicle for extracting the primary data. Questions were noted to serve an important role in the study as they are the means through which information is to be solicited from the participants. Invariably, therefore, the kind of information obtained depends on the nature of the questions asked and how the questions are asked. An Instrument for measuring attributes is constructed by the researcher and follows the design of a questionnaire conforming to a quality standard to ensure that the information sought from participants is what the study intends to obtain. Bryman and Cramer (2004:22) advance that reliability and validity are a crucial criteria in the evaluation of variables.

In order to reduce the possibility of getting wrong answers or having any shortcomings, this section describes the emphases placed on the questionnaire design. It first explores the validity and reliability of the instrument. Factor analysis is incorporated to improve the validity and reliability of the measuring instrument. This is followed by the types of

questions posed; the pilot study conducted and is concluded by the questionnaire posed to respondents.

2.6.1.1 Validity

The study notes that validity precipitates the concern of whether the findings are a true and correct representation of what it purports to measure and how accurately it represents what was happening in the situation under observation (Collins & Hussey, 2003:58). This contribution is incorporated into the study and forms a cornerstone of the research. The study also takes cognisance of several authors' advances that the major forms of validity stems from internal and external validity (Diamantopoulos & Schlegelmilch, 2000:33; Foster, 1999:202; and Welman *et al.*, 2005:107).

2.6.1.1.1 Internal validity

The study sought the internal validity of its findings by ensuring that the hypotheses were supported to a large extent by the available evidence the study yields. This conforms to the assertion of Van der Riet and Durrheim (2006:90) that a study hypothesis must bear and validly reflect in the study results. In this case the consistent indicators would be measuring the same thing.

2.6.1.1.2 External validity

The external validity of the study determines the extent to which there is an inherent capacity to generalise findings of a similar nature to other situations and contexts as proposed by Saunders *et al*. (2000:102). This ensures that the results derived do not fluctuate greatly over time and is therefore stable.

Cooper and Schindler (2006: 318) indicate that there are various types of validity that can be used to test the goodness of the measures. These are grouped into three broad categories namely content validity, criterion-related validity and construct validity as indicated in Table 2.4 and are briefly described in the paragraphs that follow. It is on these premises that the research questionnaire is designed. The potential lack of validity in the conclusions arrived at from the set questionnaires in the instrument is limited to the extent of the particular attention paid in the construction of the questionnaire.

Table 2.4 : Content, criterion and construct validity

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

Source: Cooper and Schindler (2006:319)

Durrheim and Painter (2006:146) state that content validity makes reference to the extent to which a measuring instrument adequately covers the concept under study. They propose that the more the scale items represent the domain of the content being measured, the greater the content validity. On this vein, they indicate that the content validity tends to make inferences to test construction rather than the test scores.

Welman *et al*. (2005:144) state that criterion-related validity is established when the measure differentiates individuals on a criterion correctly predicting the relevant criterion.

Christensen (2007:237) highlights that construct validity concerns with the extent to which set of operationalisation represents. In their view, definition is accorded to the theoretical construct under review paving way for the instrument scale is then investigated.

2.6.1.2 Reliability

Esterby-Smith, Thorpe & Lowe (2002:53) state, and this study resonates, that reliability can be assessed by posing the following three questions. First, will the measures yield the same results on other occasions?; second, will similar observations be reached by other observers?; and third, is there transparency in how sense was made from the raw data?. Reliability is concerned with the consistency, stability or repeatability of a variable being measured and therefore mirrors on the estimates of the degree to which the measurement is free of being random or unstable (Cooper & Schindler, 2006:321; and Christensen, 2007:206). The study takes cognisance of the aspect of reliability in the questionnaire design to ensure that the instrument is free from interference and therefore credible. The study therefore ensures that consistency, stability and repeatability are observed.

2.6.1.2.1.1 Consistency

The study embraces principle of consistency which portends that the same results would be obtained should the same instrument be subjected to similar tests. In order to ensure consistency, one of the most commonly used measures of reliability is the Cronbach's alpha coefficient (Bryman & Cramer, 2004:23) which the study puts to use.

2.6.1.2.1.1 Cronbach's alpha

The Cronbach's alpha used in this study computes a reliability coefficient that is equivalent to the average of all possible split-half reliability estimates and is a more accurate estimate of internal consistency resulting in its frequent use (Christensen, 2007:215). It measures how well a set of items (or variables) measures a single one-dimensional latent construct. The more items there are in a scale designed to measure a particular concept, the more reliable the measurement instrument will be. The alpha is calculated as follows:

$$\alpha = \frac{k}{k-1} \quad 1 - \frac{1}{\Sigma \sigma^2_x} \sum \sigma^2_i$$

In which

$\sum \sigma^2_i$ = the sum of the total variances of the items
k = the number of items
σ^2_x = the variance of the total score

Alpha coefficients ranges in value from 0 to 1 and may be used to describe the reliability of factors extracted from dichotomous and/or multi-piloted questionnaires or scales. The higher the alpha is, the more reliable the test. However, Bryman and Cramer (2004:23) observe that if the alpha comes out below 0.8, the reliability of the scale need to be investigated further.

2.6.1.2.1.2 Stability

Stability of a measure can be deemed to exist in a measuring instrument only if the same results are consistently obtained from the same person using the same instrument (Cooper & Schindler, 2006:321). It is taken that there should be no change over the recorded observations over time and this is what the study seeks to achieve.

2.6.1.2.1.3 Repeatability

Christensen (2007:206) indicates that an experimental study can be regarded as reliable if the study results can be subjected to repeat sessions in a way that it can be replicated. Thus emphasis is placed to ensure that the study becomes a reliable measure.

2.6.1.3 Factor analysis

In this study, factor analysis is used to confirm the validity and reliability of the study variables. Cramer (2003:13) describe factor analysis as a set of techniques for determining the extent to which variables that are related can be grouped together so that they can be treated as one combined variable (factor) rather than a series of separate variables.

Forster (1999:206) explains that the relationship between the original variable and the factors is expressed in terms of a correlation (or loading) with large sizes of such correlation explaining a strong association between the variable and that factor. He further indicates that a factor loading of 0.03 or more is frequently taken as meaningful when interpreting a factor. The study therefore adopts this as the yardstick of what to include as factor variables. Bryman and Cramer (2004:29) considers that the square for each entry is a measure of variance referred to as the Eigen value for the factor and any factor should be considered if this value exceeds 1.00. Coldwell and Herbst (2004:122) suggestion that factor rotation is done to improve the loadings of the variables to fit a model into a data set

such that the standard deviations obtained is reduced to as minimal as possible is considered and adopted in the study. This process enhances and depicts the common processes shared by like items in the study.

In the analysis which is conducted in Chapter 3, the study adopts a three step procedure in the use of factor analysis taken in line with the proposals by Tredoux, Pretorius and Steele (2006:248). Firstly, the study attempts to explain as much of the variances as possible by creating as many components as there are variables in the data set. In the process of looking at these components, the inter-correlation between these variables is computed. The second step is in extracting the initial factors that tries to explain which component explains the bulk of the variance as possible with factor loadings less than 3.00 being omitted. Finally, the rotated factor analysis is used in ensuring the validity and reliability of the tests on the data is obtained.

2.6.1.4 Types of questions

The design of the questionnaire adopted both classification and target questions. Cooper and Schindler (2006:363) suggest three types of measurement questions namely administrative questions, classification questions and target questions. The administrative questions identify the participant, interviewer, interviewer location and conditions. Classification questions concerns with the social-demographic variables that could facilitate the unravelling of patterns which can be studied. Target questions mirrors on and addresses the questions specific to the study. The target questions can be either structured (present fixed choices) or unstructured (no limit to responses).

The construction of the questionnaire involves three critical decision areas as proposed in Cooper and Schindler (2006:385) which are the question content, question wording and the response strategy. The focus on these areas is to ensure that the research instrument is more adapted to be user friendly and to effectively serve the research aim. In regard to the question content the study ensured that the question asked was relevant and valid. The scope of the questions coverage is examined as is the participant's ability to provide a response. A four point likert scale is adopted in the questionnaire design as a means to measuring attitudes or perceptions of the respondents. These were designed to measure an attitude in terms of degree of agreement or disagreement with an idea as expressed in a statement. The scale took the rating from strongly agree to strongly disagree.

2.6.1.5 Pilot study

A pilot study is carried out on the measuring instrument on four subjects from among the same population frame as that for which the eventual project was intended. The reason for this exercise was three fold. The first was to try and detect any possible flaws in the measuring procedures in terms of instructions and functionality of the questionnaire. The second was to identify if the questions posed in the questionnaire is clear and fully understood without any unambiguously formulated items. The last was to provide the researcher with an opportunity to notice any behaviour that may cause discomfort or embarrassment to the participants. During the process of the pilot study, the researcher was physically present during the filling up exercise. The feedback obtained is instrumental in refining the questionnaire before it is finalised for the study. The pilot study provides various insights and ideas for the refinement of the questionnaire.

2.6.1.6 Questionnaire to corporate entrepreneurs

The final questionnaire (refer to Appendix 1) used is constructed having regard to the relationships developed from the literature review as detailed in Chapter 1. The development took cognisance of the study objectives and scope in an attempt to ensure that the questionnaire construction directed the study in the most efficient and effective manner. The questionnaire consists of the following main categories of information:

Part A solicits the demographic information about the corporate entrepreneur and comprised of socio-economic variables such as gender, age, level of education, race, and general conditions of the entrepreneur/enterprise relation information.

Part B addresses the aspects of innovation within the establishment. It sets measures of the pursuit of innovation through introduction of innovation, perceived importance of innovation, innovation concepts within the company and the innovation factors.

Part C contains questions about the CE Orientation with the emerging issues being embedded on the level of risk, commitment to experimentation, achievement goals, the desire to achieve, preference of work type, the perceived level of barriers to entrepreneurship and CE Orientation factors.

2.6.2 Administration of the questionnaires

The research instrument in form of a questionnaire is administered to 50 companies selected from the population frame as indicated in section 2.6.2. Within these companies, two individuals are targeted, one to represent management level employees and the other an employee above supervisor level. The questionnaires are channelled through either the Chief Executive Officer or General Manager (GM) who randomly selects the participants.

The distribution involved a data collection process in which the questionnaire was delivered through the following steps stipulated in Table 2.5. These were to the companies based in Gaborone and those based in other towns and cities within Botswana.

Table 2.5: Process of questionnaire distribution

Step	Process	Gaborone based companies	Upcountry based companies
1	Established telephone contact with the General Manager / CEO of the companies selected to give them a brief overview of the study.	√	√
2	Obtained their willingness to participate in the study.	√	
3	Booked appointment with General manager / CEO to hand deliver to explain in greater depth the purpose of study and invite their participation.	√	
4	Send questionnaire through Email or facsimile for completion indicating the detailed purpose of the study.		√
5	Followed responses through personal door to door collection.	√	
6	Followed up Emails through reminders and telephone reminders.		√

Source: Own compilation

Of the chosen fifty companies, two declined to participate in the study and were replaced by the companies listed as the next element after those that declined. Despite the steps taken to ensure that the response rate was high, the questionnaire returns were not as high as expected. This prompted a revision of strategy midstream to ensure that the responses were attained to some sufficient level. This was achieved by ensuring that each responding company in the Gaborone area was visited at least twice a week by prior appointments with the GM and/or the CE Orientation of the respective companies. For the companies in other parts of Gaborone, Email reminders were put in place as a means of attention. Additionally, follow up telephone reminders were also instituted to ensure sufficient and prompt feedback.

By engaging the second strategy, the response rate was greatly enhanced. The study recorded a total of 100 questionnaires being returned over a period of seven weeks. The respondents represented 45 of the possible 50 companies selected and invited to participate in the study thereby a response rate of 90%. This response rate was considered sufficient for the purpose of the study.

2.6.3 Response rate

The research instrument used to solicit data manifests in form of a research questionnaire. The number of companies participating in the study totalled 50 who received 110 questionnaires as shown in Table 2.6.

As indicated earlier, the intention was to distribute two questionnaires each to the 50 companies, which would have totalled 100. There was a variation to this to accommodate the requests received from the respondents, some of who received more than the stipulated number. Of the 110 questionnaires distributed, there was a response from 100 individuals in 45 companies. The returned questionnaires represent a 90% response rate, which level is adequate for purposes of this study. The questionnaires received were all valid. The remaining 10 questionnaires not received (or 10%) represent and are treated as non-responses.

Table 2.6: Response rate: Company and Individuals

Province	Town	Responses By company			Respondents By individuals		
		Number of companies Selected by sample	Received	Not received	Number of individuals Selected by sample	Received	Not received
Central	Nata	1	1	0	2	2	0
	Palapye	2	1	1	3	1	2
	Selibi Phikwe	2	2	0	4	4	0
	Serowe	1	1	0	1	1	0
Chobe	Kasane	1	0	0	2	0	2
Klateng	Mouchudi	1	0	1	2	0	2
North East	Francistown	3	3	0	6	6	0
South East	Gaborone	38	36	2	88	84	4
	Lobatse	1	1	0	2	2	0
TOTAL		**50**	**45**	**5**	**110**	**100**	**10**

Source: Own compilation

2.6.4 Measurement design

Measurement is central to research since research evolves around measurement of attributes (a characteristic) and/or objects with the eventual decision being made on the basis of all the measurements obtained. Most of the attributes or objects to be measured in research are variables which comprise of anything that may assume different numeric values. Variables in a conceptual framework are made functional and operational by being measured. When such a measure can take place then the relationship between or among them can be empirically tested. The measurement of the variable in the conceptual framework is therefore an integral part of research and the functionality of variables (Antonius, 2003:12; Cooper & Schindler, 2006:311; Coldwell & Herbst, 2004:96; and Diamantopoulos & Schlegelmilch, 2000:67).

Measurement is defined by Morris (2003:45) as a procedure in which numerals are assigned to objects, properties or attributes according to some rules, which specifies the procedure according to which numerals or numbers are to be assigned. The numerals, which are the end product of measurement, might be used for comparison, evaluation or some mathematical or statistical operation.

2.7 DATA ANALYSIS TECHNIQUES

2.7.1 Levels of measurement

The mathematical and statistical operations permissible on a given set of numbers are dependent on the level of measurement used. In general terms, the lower the level of measurement the more limited the number and kinds of mathematical or statistical operations that can be done on the measurements obtained. Antonius (2003:11) points out that attention must be given to the ways in which the observations pertaining to the variables are recorded. Such a system of recording must be very clear and facilitate interpretation without any ambiguity. Diamantopoulos and Schlegelmilch (2000:24) note that there are four classes in which measurement can be used. These are as per Table 2.7.

Table 2.7: Measurement scales

	Scale type			
Properties	**Nominal**	**Ordinal**	**Interval**	**Ratio**
Equivalence	Yes	Yes	Yes	Yes
Order	No	Yes	Yes	Yes
Equal Intervals	No	No	Yes	Yes
Absolute zero	No	No	No	Yes
Typical usage	Store types Product categories Geographic locations	Occupation Social class Brand preference Attitudes	Index numbers Temperature Calender time Attitudes	Sales Costs Age Number of customers

Source: Diamantopoulos and Schlegelmilch (2000:24)

The systems used to record the observations in the research study were of nominal, ordinal and interval scales as described below:

2.7.1.1 Nominal scale

The first of the level of measurements is the nominal level of measure. The nominal level of measure is used to measure qualitative variables and is the simplest system for writing down an observation. The characteristic in a variable in this form is measured by establishing a number of categories in which the observation will fall into only one of this category. In this respect, the nominal data is presented in the form of having a yes or no type of answer and therefore no mathematical or statistical operation can be performed on it. Such data in the study is used for naming or identification only.

2.7.1.2 Ordinal scale

The second level used in the study comprises the ordinal scale of measure. Antonius (2003:11) indicates that use of this measurement is done when observations are organised in categories that were ranked and ordered. The ordinal scale level categorises the variable to denote qualitative differences among the various categories and also ranks them in some meaningful way. Thus in the study these represents categories that are ordered according to some preferences in which the ordinal scale is used. This entails the ranking of preferences from excellent to poor on a four point likert scale. At this level, the variable being measured constitutes quantitative and/or qualitative data. The ordinal scale in use helps the study in tapping into the differences in the categories and provides some information of how respondents distinguish among these items by ordering them by rank.

2.7.1.3 Interval scale

The third level of data used is the interval scale. Cooper and Schindler (2006:315) assert that the measure by interval scale affords every observation to be measured against the scale for the determination of inequality of intervals or differences, and assigns a numerical value, which measures quantity. These variables are said to be quantitative. The interval scales allows for the computation of the means and the standard deviations of

the responses on the variables. In addition to what the ordinal scale can offer, it also measures the magnitude of the differences in the preferences among individuals.

2.7.2 Data processing

The questionnaire to the corporate entrepreneurs consisted of three information categories of corporate entrepreneur's demographic details, Innovation and CE orientation which can be highlighted as indicated in Table 2.8:

Table 2.8: Information categorisation of questionnaire

Corporate entrepreneurs	Innovation	CE Orientation
Gender Age Race Position in the company Highest level of education Length of time with the company Sector Company operates in	Employee's introduction of new innovation Company's introduction of new innovation Importance of innovation Innovation concepts within the company Innovation factors	Level of risk-taking Commitment to experimentation Achievement goals in the company Desire to achieve Preference of work type Level of barriers to entrepreneurship CE orientation factors

Source: Own compilation

2.7.3 Data preparation

The study prepares the data collected for the research in a manner as to make it sound and relevant for its purpose. The study recognises that data is normally received in different formats and have different properties. Mouton (2004:108) suggests two of such formats as textual and numeric data. Textual data are rich in meaning as they sometimes provide multiple meanings and are therefore difficult to capture in a short, structured manner. Numeric data comprising statistics, numbers and quantitative measurements are usually well structured and easy to capture. They are also not rich in meaning as textual data. The study mainly collects numeric data as a means to facilitate data analysis.

Coldwell and Herbst (2004:96) state that data preparation usually precedes data analysis. The process of data preparation lends to data accuracy and enforces a conversion from a raw to classified form that can befit analysis and interpretation. The process of data preparation used instrumentally in the study involves coding, editing, and tabulation in conformity with the suggestions of Coldwell and Herbst (2004:96).

2.7.3.1 Data coding

To facilitate computer data capturing, a code book is set up. Welman *et al*. (2005:227) refers to a code as a symbol, usually numeric, that is used to represent responses to survey questions. Coding provides a means for analysing statistical data and decision of different code values can ensue from data coding. The code book used in the study contains all the information that allows the recording of all answers received in the data file to enable interpretation. The code book assigns a variable name (name given to each variable), a variable label (description of the variable) and a value label (assigned numerical value). A code list is prepared in which the various codes are assigned to the responses received.

2.7.3.2 Data editing

A two stage process is done to ensure successful data editing. Diamantopoulos and Schlegelmilch (2002:41) indicate that editing has the objective of identifying omissions, ambiguities and errors in the responses. Thus, from the data received, the initial point for data analysis in this study was the editing of data. In the first instance, whilst collecting responses, questionnaires are checked to ensure that they had been completed wholly and comprehensively. Any noted exceptions is dealt with and corrected on site. In the second instance, all returns are piled together and checked for any notable omissions or inaccuracies and missing (or invalid) values. The essence of this procedure is to ensure that the responses received contained acceptable standards on the raw data to provide the desired representation of the source information. The process therefore ensures that the data obtained is complete, whole and accurate.

2.7.3.3 Data tabulation

The study collects numeric data and uses the data code book to present the raw data in a tabulated computerised format with the variables on the horizontal axis and respondents on the vertical axis. Coldwell and Herbst (2004:101) suggest that tabulation is the process of counting the number of cases that fall into the various categories. This data is independently checked for accuracy before being presented to the University of Pretoria Statistics Department (UPSD) for data analysis.

2.7.4 Data analysis

The data analysis is carried out through the support of the USPD. The coded data is presented to the UPSD who in turn provide statistical analysis of the same. Coldwell and Herbst (2004:92) point out that the purpose of analysis is to generate meaning from the raw data collected. In this vein, the data captured eventually results in the analysis and interpretation of the data set. Mouton (2004:108) points out that the process of analysis encapsulates the process of disseminating the data into manageable themes, patterns, trends and relationships. The analysis process in the study thus provides an understanding of the constructive elements of ones data unfolds from deriving relationships between concepts, constructs or variables. It is from this premise that the research identifies and/or isolates any emerging patterns and trends or establishes themes in the data. Two types of data analysis are carried out namely descriptive statistics and inferential statistics. Detailed analyses of these two methods are provided in Chapter 3.

2.7.4.1 Descriptive Statistics

The study notes and adopts Saunders *et al.* (2000:351) viewpoint drawing attention to the fact that descriptive statistics enables us to describe and compare variables numerically. The objective of the descriptive statistics is to describe a situation by summarising information in a way that it highlights the important numerical features of the data. This process focuses on the four aspects of central tendency, location, graphical representation and the measures of relationship.

2.7.4.1.1 Pie Charts and bar charts

Pie charts and bar charts is used to provide a visual expression of items being compared and to simplify all number in the range as well as provide a relative comparison of data

being observed (Antonius 2003:295). Pie charts indicate a division of the frequencies into proportional segments according to the share each has of the total value. Bar charts, on the other hand, represent the frequency occurrence of the frequency in a bar format.

2.7.4.1.2 Frequency distribution

Frequency distribution is used in the process of examining the grouping of the number of cases that fall within various categories or classes. Saunders *et al.* (2000:339) state that the frequency distribution (table) is the simplest way of summarising data for individual variables to allow specific values to be read. By using the frequency distributions the study communicates its results whilst dually determining the magnitude of the observation of specific factors.

2.7.4.1.3 Cross tabulation

Cross-tabulation is used to provide the study a means to look at more than one variable simultaneously. Diamantopoulos and Schlegelmilch (2000:175) describe a cross-tabulation as the method of grouping variables against the characteristic of interest. In the study, the results obtained from cross tabulations examine how the scores recorded by the variables of interest reflect the relationship between them thus presented as cross tabulations.

2.7.4.1.4 Measures of central tendencies

The measure of central tendencies (or location) is used to determine the typical or middle point of the data set. Welman, *et al*.(2005:233) describe the mean to constitute an arithmetic average of a set of scores denoted by X. They note that the mean takes account of the addition of all the items in a list of scores and then dividing the total by the number of scores thus:

$$X = \frac{\sum X}{N}$$

2.7.4.1.5 Measures of variation

The measure of variability namely the variance and standard deviation is used to determine the spread or variability of the data set to determine where the values of a frequency distribution are located. Christensen (2007:411) indicates that both the variance

and standard deviation provide an index of the extent to which the grouped observations may vary about the mean. In the study the variance is used to describe the average sum of the squared deviations, with standard deviation represents the square root of the average of the sum of squared deviations. The mathematical expressions are shown for the variance as:

$$s^2 = \frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N - 1}$$

in which

s^2 = the variance

X = the individual scores

N = the number of scores in the group.

The standard deviation is modelled as:

$$S = \sqrt{\frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N - 1}}$$

in which,

S = the variance

X = the individual scores

N = the number of scores in the group.

The standard deviation represents the square root of the variance and is therefore the preferred measure of variability.

2.7.4.1.6 Measures of skew

The measure of the distribution of skewness is used to reflect the symmetry in the distribution of the frequencies. Diamantopoulos and Schlegelmilch (2000:91) state that this distribution can either be symmetrical or asymmetrical. Symmetrical skewness in the study represents a data set that is evenly distributed and presents the median, mean and mode in the same location. In the case where the distribution of skew is asymmetrical, two

situations arise. In the first instance, the larger frequencies of the data lean towards the lower end making the skew to become positively skewed. The alternate instance presents a negative skew with larger frequencies leaning towards the high end of the variable.

The symbol for skewness is

$$sk = \frac{n}{(n-1)(n-2)} \sum \frac{(X_i - \bar{x})^3}{s}$$

Where,

sk = the skewness

X = the individual scores

n = the number of scores in the group

s = the sample standard deviation

2.7.4.1.7 Pearson Product-Moment Correlation Coefficient

In this study, correlation is used to measure the relationship between variables and the measure obtained determines the degree to which one variable is related to another. Evans & Olson (2000:49) describe, and the study notes and records correlation as a measure of strength of linear relationship between two variables. The Pearson Product-moment correlation coefficient is used as a measure of the relationship strength. Christensen (2007:435) states that the Pearson Product-moment correlation coefficient is the most commonly used statistical measure of degree of relationship between two variables and can take the following form:

$$r = \frac{\sum XY - \frac{(\sum X)(\sum Y)}{N}}{\sqrt{\left[\sum X^2 - \frac{(\sum X)^2}{N}\right]\left[\sum Y^2 - \frac{(\sum Y)^2}{N}\right]}}$$

where,

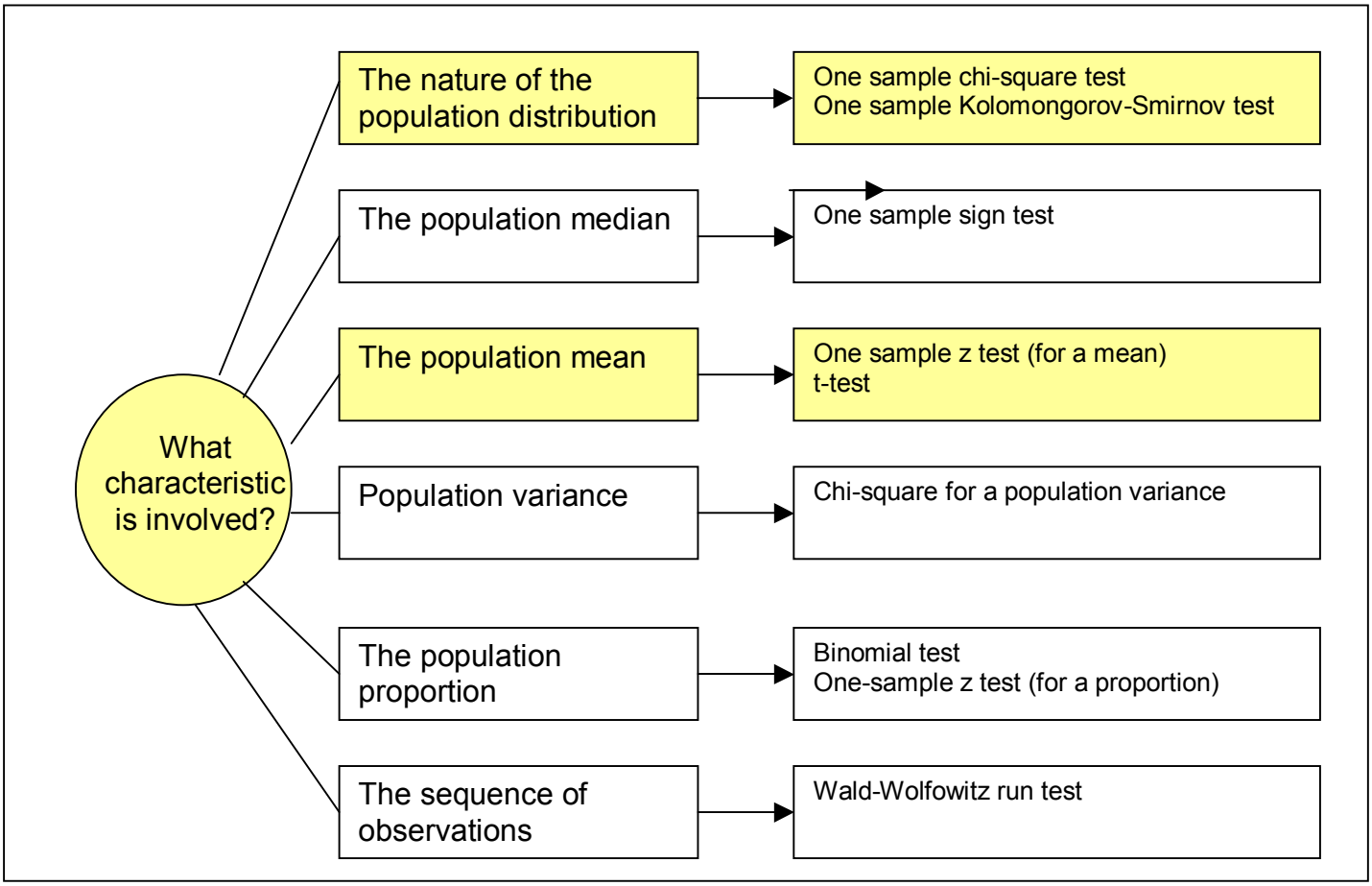
r= correlation coefficient
X= raw scores for one variable
Y= raw score for the second variable
∑= sum of the cross products of X and Y
N= Number of participants

Correlation coefficients range from -1.00 through to +1.00 and reflect a measure of change in one variable as compared to a corresponding and same change in the other variable. Bryman and Cramer (2004:27) state that conventionally, correlations in the range 0.1 to 0.3 can be described as weak; 0.4 to 0.6 as moderate and 0.7 to 1.0 as strong.

2.7.4.2 Inferential Statistics

The study aims at investigating the relationship between the DV and IV under investigation through inferential statistics (or inferences). Hazelrigg (2004:65) describes inferences as a process of arriving at a conclusion. In the study, a generalisation is drawn from evidence obtained from the data set is used to test the hypothesis on the relationship or differences in population using data obtained from the sample. In determining the inferential statistics that is employed in the study, a statistical tree proposed in Figure 2.2 is used. The path adopted by the study is marked in yellow and is used to interpret the findings in Chapter 3.

Figure 2.2: Statistical techniques for hypotheses involving population characteristics



Source: Mourdoukoutas & Papadimitriou 2002:153

2.7.4.2.1 Chi-square test

In determining the level of the statistical significance of the variables, the study uses the Chi-square (χ^2), which Cooper and Schindler (2006:507) observe is the most widely used test of significance. Welman, Kruger and Mitchell (2005:231) indicate that the Chi-square is used to determine if the difference between statistically expected and actual scores on the allocation of categories to two variables are caused by chance or if they are statistically significant not caused by chance. This is represented by the formulae:

$$\chi^2 = \sum_{I=1}^{k} \frac{(O_i - E_i)^2}{E_i}$$

in which

O_i = observed number of cases categorised in the $_i$ th cell.

E_i = expected number of cases under Ho to be categorised in the $_{ij}$ th cell.

K = number of categories.

2.7.4.2.2 t- test

The t-test for independent groups is used on the group of individuals who introduce innovations to the company frequently and those who rarely or never introduce innovations. The purpose this test is to find out if the population mean exceeds and/or has a significant difference between the mean score of the variables in the three rotated factors as well as the pursuit of innovation described in Chapter 3. The t for independent groups is defined as the difference between the samples means expressed as a fraction of the standard error of the mean difference. The t-test thus takes account of the sample size as well as the likely variability in the population using the standard deviation of the sample as an estimate.

2.7.4.2.3 Mann-Whitney test

The Mann-Whitney test is used to compare the non parametric parameters in the study. Foster (1999:199) indicates that the Mann-Whitney test is one of the common non-parametric test that compares the scores on a specified variable of two independent groups. Coldwell and Herbst (2004:119) describe the procedure as entailing a process

where the scores (n) of two groups (A and B) are ranked independently and randomly from the smallest (rank = 1) to the largest (rank= $n_1 + n_2$) as one set. The sum of the ranked values (T_A and T_B) of each subgroup is found and a U statistic is then constructed by the one of the following mathematical technique:

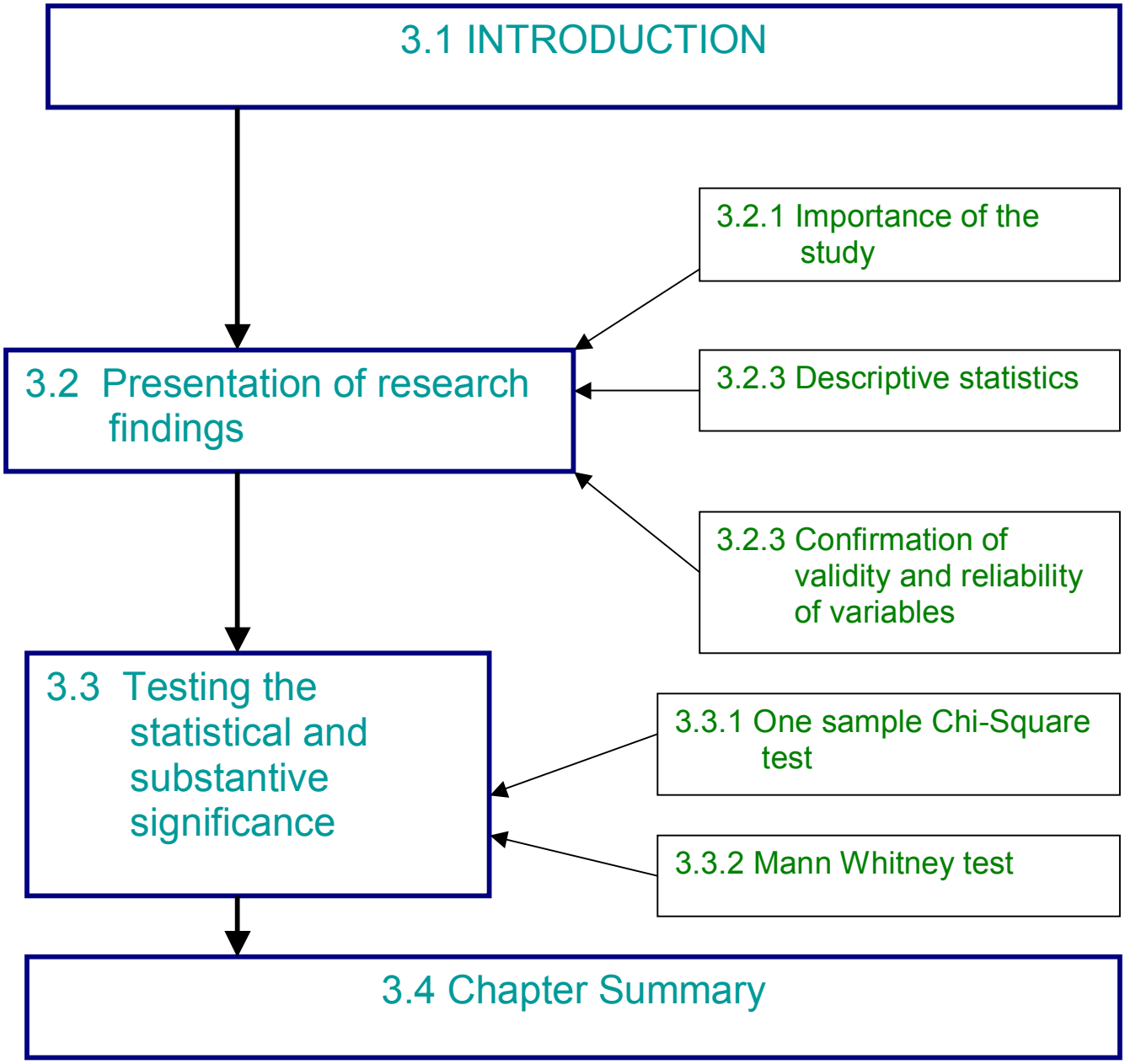
$$U_A = n_1 n_2 + \frac{n_1(n_1 + 1)}{2} - T_A$$

$$U_B = n_1 n_2 + \frac{n_2(n_2 + 1)}{2} - T_B$$

2.8 CHAPTER SUMMARY

This chapter has dealt with and traversed through the research design and methodology. It mirrored on the apparent research problem that paved the way for the study. This was followed by the development of research objectives that clearly outlined the stage for the hypothesis development. A concise research design was thereafter formulated in which the research design (data collection design, sampling design and instrument design) were formulated as a means to provide the implementation of the study. The data collection procedures was then enacted to facilitate the capture of data with due consideration placed on the reliability and validity of the data collected. Finally, the chapter ended with the means to the data analysis methods and measures for the statistical significance, which provides the platform to analysis and interpretation of data.

CHAPTER THREE: PRESENTATION AND INTERPRATION OF FINDINGS



CHAPTER 3
PRESENTATION AND INTERPRETATION OF FINDINGS

3.1 INTRODUCTION

The literature review in Chapter 1 revealed an inherent link between CE orientation and the pursuit of innovation. This prompted the study to investigate the extent of the relationship between these variables as they portend in Botswana. In Chapter 2, the research methodology was designed to provide the architecture for this study. Most importantly, a research question, objectives and hypotheses statements were postulated to explore the relationship and the correlations between CE orientation and the pursuit of innovation. The exploration was conducted through a survey questionnaire and a data set compiled for the responses received. The purpose of this chapter is to present and describe the data derived from this study. The analysis provides a vehicle to answer the research problem. This Chapter consists of two parts delineating the presentation of the research findings and testing the statistical and substantive significance.

The first part, comprising the presentation of the research findings, portrays the descriptive statistics and cross tabulations. The descriptive statistics comprise of employee and industry demographics of the respondents. It also accords attention to the perception of introduction of innovation by individuals by placing emphasis on the innovation processes inherent in the organisations as well as the barriers which inhibit innovation.

The second part deals with the test of statistical significance. Firstly, factor analysis is carried out to determine the reliability and validity of the measuring instrument. The study factors are identified, labelled and the statistical correlation explored. In particular, cross-tabulation between the variables of interest namely CE orientation and pursuit of innovation are conducted. Correlation analysis on these variables further supplements to test the strength of the relationship between these variables. The one-sample chi-square (χ^2) test (detailed earlier in Chapter 2) indicates the significant differences of the various variables. Finally, the t-test and the Mann-Whitney test is carried out by using the factors identified in factor analysis.

3.2 PRESENTATION OF RESEARCH FINDINGS

3.2.1 Descriptive Statistics

The study uses descriptive statistics as a means to represent the data collected. Antonius (2003:9) describes descriptive statistics as aiming at summarising large quantities of data by few numbers, in a way that highlights the most important numerical features of the data. The study presents the employee and industry demographics in such a manner.

3.2.1.1 Employee and industry demographics of sample selected

In this section, presentation is made of the employee and industry demographics. These presentations reflect the responses of the 100 participants who returned the survey instrument. The presentations made in this section comprise the gender of the respondents, age groups, the racial composition, position in the company, highest level of education attained, length of working in the company, and business sector in which the company operates. The representation by gender shown in Figure 3.1 reflects that responses received were predominantly from male participants. The male respondents constituted 78% of the total with the remaining 22% being females. This would probably explain the predominance of the male gender at higher levels (from supervisory level upwards) in corporate circles in Botswana.

Figure 3.1: The gender of the sample

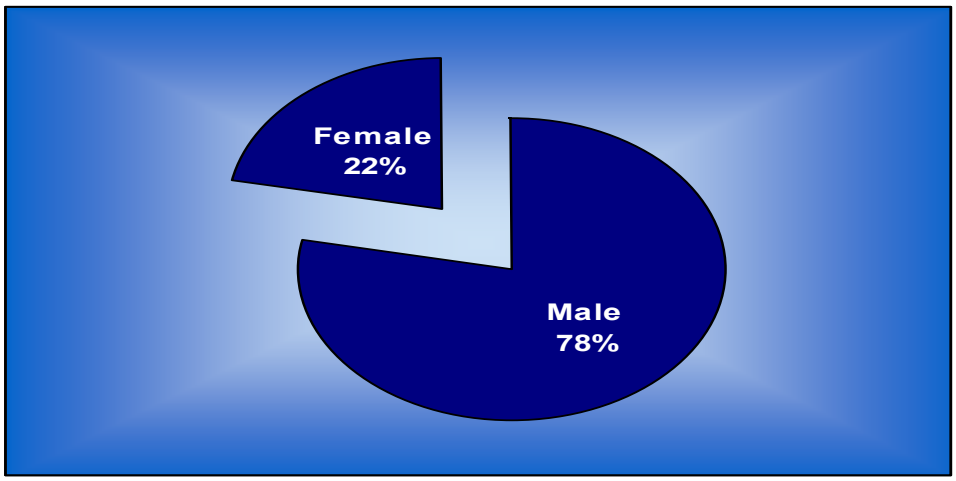
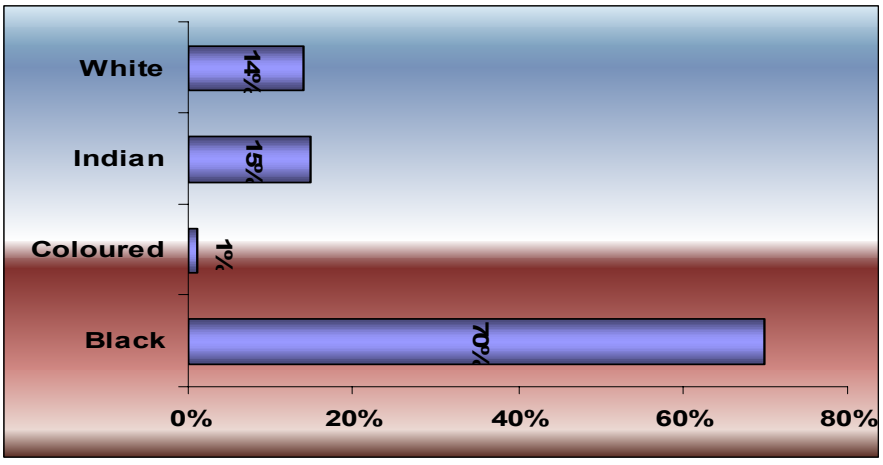


Table 3.1: Age groups of sample respondents

Age	Frequency (n)	Mean age	Standard Deviation	Minimum Age	Maximum Age
21 – 30	25				
31 – 40	47				
41 – 50	20				
51 – 60	6				
61+	2				
Total	**100**	**37.12**	**8.936**	**22**	**65**

The age of the respondents, grouped in categories of 10, is presented in Table 3.1. The table indicates that the youngest respondent was 22 years of age with the oldest being 65 years. The age group of 31 to 40 represented the most number of respondents and accounts for 47% of the total number of responses. The average mean age is indicated as 37.12 with a standard deviation of 8.936. Christensen (2007:410) describes the average mean (X) as the sum of a set of values divided by the total number of values in the set. The standard deviation can be defined as the variation about the average of the data which summarises how far away the data values typically are. The derived standard deviation of the age in this study, which is considerably high, represents a significant departure from the mean age.

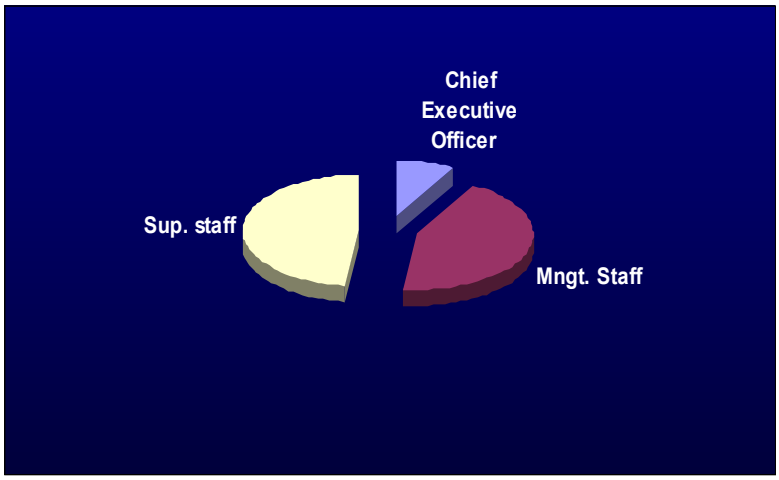
Figure 3.2: The racial composition of the sample



The racial composition of the respondents is presented in Figure 3.2. The figure depicts an uneven distribution with the majority of the respondents (70%) being in the black racial group. Indian and white racial group were 15% and 14% respectively, and the coloured racial group formed 1%. This result tends to reflect the lack of racial diversity in the

corporate organisations probably due to the ongoing localisation programmes currently being implemented country-wide.

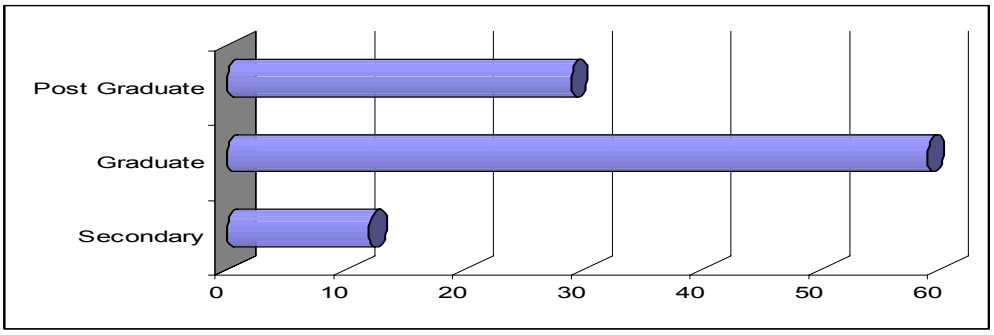
Figure 3.3: The hierarchical position in the companies of the sample



In terms of the hierarchical position in the companies, there was an equitable distribution between the supervisory and management level staff as shown in Figure 3.3. This was what the study had expected to receive so that the study could have representations from both management and supervisor level employees.

Responses were received from eight Chief Executive Officers (CEO's) and 44 management level employees. This combined group accounts for 54% (n=54) of the total respondents and can be compared favourably with 48 respondents from supervisory level. This equitable distribution is useful as the study captures the levels in the organisation that could significantly influence CE. The hierarchical position was however not a study focus and future studies could be carried out on how responses received from these two categories compare.

Figure 3.4: Highest level of qualification attained by respondents



The highest levels of education of the respondents are presented in Figure 3.4 in the previous page. The majority of the respondents are indicated to have attained graduate level education and above with graduate level 57% (n=57) and post graduate 27% (n=27). Responses with graduate level education number 84 of the 100 responses received. This probably explains the requirement of most organisations in placing emphasis on educated employees at higher levels in their organisations.

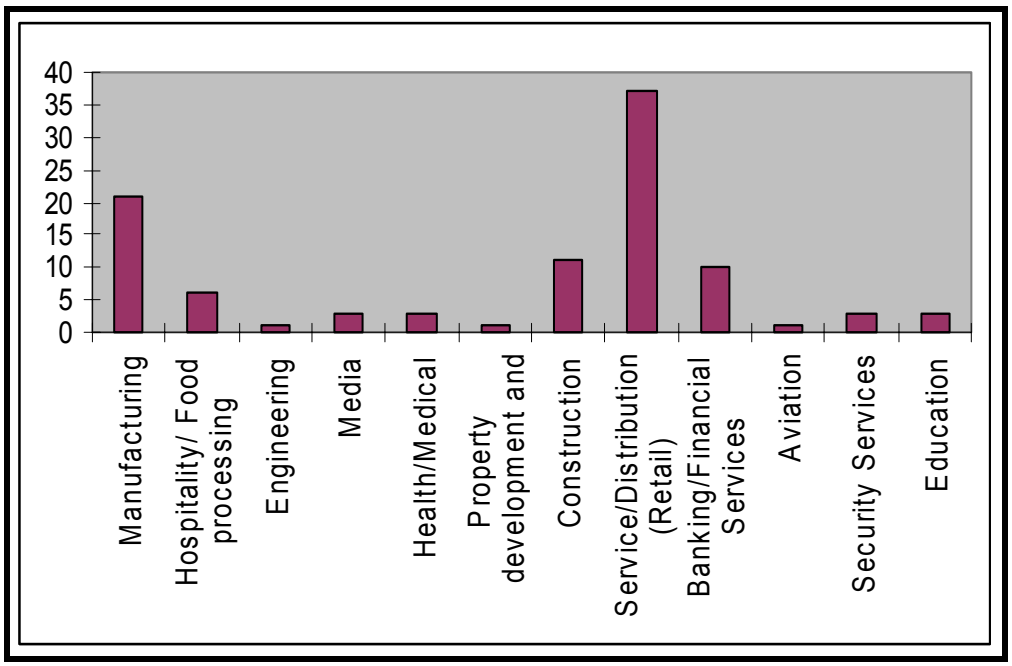
Table 3.2: Length of working in the company of respondents

Number of years with the company	Sample				
	Number	Mean	Standard deviation	Minimum	Maximum
0 - 5	47				
6 - 10	26				
11 - 15	17				
16 - 20	8				
21 - 25	0				
25+	2				
TOTAL	**100**	**7.32**	**6.13**	**1**	**29**

Table 3.2 presents the length of time (in categories of five years) that the respondents have been with the organisations in which they work. The single largest number of respondents, 47% (n=47) have been in employment for five years or less in the organisations in which they work. This probably reflects the infusion of younger employees at management levels. The next group constituting 26% of the total (n=26) indicated that they have been in the company for between six to 10 years. The shortest stay with the company was one year with the longest serving 29 years. The average length of stay with

the company was indicated as 7.32 (almost seven and a half) years with a standard deviation of 6.13. The standard deviation is large and seems to suggest a large variability in the data set.

Figure 3.5: Business sector in which the companies operate



The responses received revealed that the employees were engaged in a wide spectrum of industries as presented in Figure 3.5. The majority of the respondents were engaged in the service/distribution sector (37%), manufacturing sector (21%), construction sector (11%), and banking/financial services sector (10%). The results, however, seem to reflect the proportion of corporate companies in Botswana by industry type. It draws an interesting analogy that either the samples can be selected on this proportion or sector specific studies can be done.

3.2.2 Confirmation of the validity and reliability of the variables

The measuring instrument seeks to confirm the validity and reliability of the variables under consideration. In Chapter 2, mention was made of factor analysis as the means to provide the study with the confirmation of the validity and reliability. In essence, the use of factor analysis is to look for patterns among the variables to discover whether an

underlying combination of the original variable (a factor) that can summarise the original set.

3.2.2.1 Factor criterion and reliability

The literature review in Chapter 1 formed the basis of the theoretical framework from which factors in the study were constructed. Each of the mentioned factors was subjected to analysis to establish the inherent internal reliability. Factor analysis was thus done on variables used in the empirical study. The variables were sorted and rotated to illustrate the different factors and values presented from the highest to lowest as evidenced in Tables 3.3 and 3.6. This concentrated on the variables posed in respect to the respondents' pursuit of innovation and their CE Orientation.

3.2.2.2 Pursuit of Innovation

The variables contained in the construct pursuit of innovation comprised of opportunity identification, assessment development and refinement of the concept, resource gathering and implementation. The pursuit of innovation Factor loadings were initially done on four and three factors that revealed unsatisfactory loadings and Eigen values due to the fact that the correlation between the factors were too high.

In order to increase the validity and reliability of the measuring instrument, a decision was taken to re-run factor analysis, which resulted in two acceptable factors. The resultant rotated factor analysis is presented in Table 3.3 in which the factor analysis is ranked from the highest 0.927 to the lowest value 0.382 as Factors 1 to 2. The rows have been arranged so that for each successive factor loadings greater than 0.30 appear in their order of ranking and loadings less than 0.300 as was found in Variable 29 have been replaced by a zero as mentioned in Chapter 2.

Table 3.3: Rotated factor analysis of respondents' pursuit of innovation

Variable Number	Description of variable	Loadings	
		Factor 1	Factor 2
V 27	Enough feedback is given by the company on any innovative initiative that employees bring forward	0.927	0.000

V 37	All new initiatives are tracked to provide maximum learning outcomes of the project	0.918	0.000
V 30	There is a lot of management support to secure any resource(s) needed to implement any new idea	0.850	0.000
V 31	It is easy for employees to seek and obtain help in exploring any new initiative they have	0.796	0.000
V 32	When required, funding is made available by the company in the event of new initiatives	0.788	0.000
V 34	The company is open to testing any new initiatives brought forward by employees	0.753	0.000
V 28	Employees are provided a platform to develop any new concept if found beneficial to the company	0.695	0.000
V 35	Mistakes that arise from implementing any new initiatives in the company are taken as a learning experience	0.614	0.000
V 36	The control over implementing a new initiative is implemented easily	0.531	0.000
V 26	The company in which I work critically reviews any new concept presented by workers	0.526	0.303
V 33	There is no restriction imposed on a new initiative introduced in the company	0.393	0.000
V 24	The company is persistently looking for new ways of improving its product or processes	0.000	0.718
V 20	I am encouraged to freely air any opportunity I identify which would be beneficial to the company	0.000	0.687
V 25	Innovativeness and creativity are thought of as important in my work place	0.000	0.624
V 21	Any change in me is exciting and rewarding	0.000	0.615
V 23	There is competition among individuals to encourage the identification of new and better ways of producing products, work methods or processes	0.000	0.385
V 22	I like looking at problems with a new approach	0.000	0.382

As indicated in Chapter 2, an Eigen value is included as a factor when loading is done on variables and the resulting value is greater or equal to 1. Although the researcher had anticipated four factors, the rotated factors revealed two. The Eigen values, which represents the amount of variance explained by each factor and determines the factor loading is noted for Factor 1 to be 8.766 and for Factor 2 to be 1.493. Factor 1 explains 49% of the total variance while Factor 2 explains 54.82% of the total variance. Table 3.4 therefore illustrates the two factors indicated to have been tested with the questionnaire. The following labels are given to the factors:

Factor 1: Opportunity Identification

Factor 2: Opportunity generation and exploitation

The two factors indicated above will from now on, when jointly used, be labelled as **pursuit of innovation** factor for all the statistical techniques that will follow.

Table 3.4: Cronbach alpha results for pursuit of innovation

Factor	Description of factor	Cronbach Alpha Value
Factor 1	Opportunity Identification	0.9349
Factor 2	Opportunity generation and exploitation	0.8092

As indicated in Table 3.4, the derived two factors from the 17 items subjected on a 4 point likert scale returned an excellent Cronbach alpha scores which by far exceeds the 0.800 level mentioned in Chapter 2. A combined Cronbach's value of 0.9374 was obtained for the variables used.

Table 3.5: Factor correlation for rotated factors

Factor	Factor 1	Factor 2
Factor 1	1.000	
Factor 2	0.632	1.000

The correlation between the factors as reflected in Table 3.5 reveals that they are stable to be used as separate factors.

3.2.2.3 Corporate Entrepreneurship Orientation

The variables identified in the literature review and which is contained in the construct CE Orientation comprised risk taking, proactiveness, attitudes, focused knowledge and the need for achievement. The CE Orientation Factor loadings were done on five, four, three

and two factors which resulted in unsatisfactory loadings and Eigen values as well as indicating too high correlations between the factors. The factor analysis had to be re-run to exclude variables 55, 56, 63 and 64 because of the low Eigen values recorded in the previous runs. Table 3.6 presents the resultant acceptable one factor to increase the validity and reliability of the measuring instrument.

Table 3.6: Rotated factor analysis of respondents' CE Orientation

Variable Number	Description of variable	Loadings
		Factor 3
V 60	I prefer to strategically plan ahead to make sure that the chances of my success are increased	0.804
V 70	I act towards attaining the needed action to achieve the results desired	0.767
V 59	I like finding out how our operations, processes or products could be made to work even better	0.733
V 58	I like taking personal responsibility in whatever I do in the company	0.711
V 62	I am open to new information or ideas	0.704
V 71	I constantly give due consideration to the expectation of success or failure on my action	0.677
V 72	I am aware of perceived barriers (personal or external) to my achievement and seek help to overcome such perceived barriers	0.624
V 57	I prefer to lead rather than to follow in the business areas that would give my company a competitive advantage	0.611
V 67	I concentrate my efforts on the successes that I am able to achieve from what I do	0.598
V 69	I always think about attaining a set achievement goal	0.575
V 65	I acquire my knowledge by learning from the results of what I do	0.552
V 61	I prefer to have a high level of independence in what I do	0.540
V 68	I am encouraged to be aware of what happens in departments other than that which I work	0.407
V 66	Knowledge flows freely and openly at my work place and assists in decision making	0.396
V 54	I evaluate the potential success of any project with the level of risk undertaken	0.299

The Factor analysis for CE orientation is ranked from the highest to the lowest as 0.804 and 0.299 respectively. The Eigen value for Factor 3 is 6.257 which explain 37.93% of the variances. Table 3.6 illustrates the one factor indicated as having been tested by the questionnaire is labelled as **Factor 3: CE Orientation** and will from now be used as such for all the statistical techniques that will follow. The ensuing correlations that existed as

shown in Table 3.7 indicate that they were stable for it to be used as separate factor by returning a high Cronbach value of 0.894 which explained 91.6% of the variance.

Table 3.7: Cronbach alpha results for CE Orientation

Factor	Description of factor	Crobach Alpha Value
Factor 3	C E Orientation	0.8940

Based on the explorations on the factor analysis above, the indication is that the questionnaire tested three concepts (or factors). When these factors are used together, they will be referred to as **the three rotated factors**.

3.2.2.4 Introduction of innovation by individuals

To improve the understanding the above factors, the study examines the variable indicating the level of **introduction of innovations by individuals** (VV8) in their organisations. The **introduction of innovation by individuals** is regarded as an important variable in the study for the reason that for innovation to take place within corporate boundaries, the corporate environment must be conducive to support innovations. It is considered that individuals in such organisations will thrive and infuse innovation streams if they perceive the organisational processes as supporting their entrepreneurial cause and any inherent barriers for the same kept at a minimum.

The study analyses the data from three perspectives. First, attention is given to the respondent's perception of the organisational processes that catalyses innovation relative to the processes that cultivate innovation such as human and organisational processes. Second, cross tabulations between the introduction of innovation by individuals and variables of interest is explored. This intends to analyse personal attributes that contribute to innovation within corporate boundaries. Third, the perceived barriers to CE orientation are tabulated on a host of impediments identified in the literature review in Chapter 1.

3.2.2.4.1 Perception of the importance of innovation processes by individuals

Table 3.8 presents the extent to which individuals view the innovation processes within the organisation in which they work. The study shows that 77% (n=77) of the respondents regarded getting ideas on how to make innovations better, a very important aspect while an almost equal number of 73% (n=73) similarly rated implementing innovative ideas. The organisational processes and the human processes that explore and exploit innovation recorded responses that regarded these as very important to be 61% (n=61) and 57% (n=57) respectively. These results portrays that the perception of the individual employee is that the innovation processes inherent in organisations instrumentally catalyses the innovation streams in the company. This means that innovation by individuals in corporate companies is affected by these processes.

Table 3.8: The perceived importance of innovation processes of respondents

	Very Important		Fairly Important		Fairly unimportant		Not Important		Total	
	Freq (n)	%	Freq (n)	%	Freq (n)	%	Freq (n)	%	Freq (n)	%
Getting ideas on how to make innovations better	77	77%	22	22%	0	0%	1	1%	**100**	**100%**
Implementing innovative ideas	73	73%	25	25%	1	1%	1	1%	**100**	**100%**
The human processes that explore and exploit innovation	57	57%	34	34%	5	5%	4	4%	**100**	**100%**
The organisational processes that explore and exploit innovation	61	61%	35	35%	2	2%	2	2%	**100**	**100%**

3.2.2.4.2 Cross tabulations of individuals reactions to implementing innovation

Cross tabulations on the variable "**introduction of innovations by individuals"** with some of the variables of interest are presented in Tables 3.9 to 3.12. These cross tabulations are carried out to provide an understanding of the variable being explored.

Table 3.9: Cross tabulation of the variables innovations introduced by individuals with innovation introduced by the company

	Innovation introduction by the company				
Innovation introduced by individuals	Frequency Expected Percent Row pct. Column pct.	Never	Rarely	Frequently	Total
	Never or rarely	4 1.9 4.0 10.53 80	17 8.74 17 44.74 73.91	17 27.36 17 44.74 23.61	38 38.0
	Frequently	1 3.1 1.00 1.61 20.0	6 14.26 6.00 9.68 26.09	55 44.64 55.00 88.71 76.39	62 62.00
	Total	5	23	72	100
		5.00	23.00	72.00	100.00

Table 3.9 shows a cross-tabulation between innovations introduced by individuals and those introduced by the company. The association between these two variables affords an understanding of the extent to which innovative individuals operate in companies that are equally innovative. The row percentage suggests that 62% of total responses received were from individuals who introduce innovations in their company frequently. Of the total responses, 55% worked in organisations where frequent innovations are introduced in their company. The companies level of frequent innovation is noted as 76% (n=72).

The data suggests that innovation streams from within corporate boundaries as well as those proposed by individuals the employee. This is a very interesting perspective to note especially that the innovation is introduced in companies outstrip that of the employees who introduce innovations frequently. This seems to suggest that the companies are not solely reliant on internal innovation streams to be innovative.

Table 3.10: Cross tabulation of the variables innovations introduced by individuals with individuals level of risk-taking

	Individuals level of Risk taking		
Innovation introduced by individuals	Frequency Expected Percent Row pct. Column pct.	High to Moderate	Low	Total
	Never or rarely	35 34.96 35.00 92.11 38.04	3 3.04 3.00 7.89 37.50	38 38.0
	Frequently	57 57.04 57.00 91.94 61.96	5 4.96 5.00 8.06 62.50	62 62.00
	Total	92	8	100
		92.00	8.00	100.00

Table 3.10 examines the relationship between innovations introduced by individuals with their level of risk taking to determine the level of risk-taking in innovative individuals. The row percentages suggest that the individuals who frequently introduce innovations in their organisations have a divergent level of risk. Individuals who introduce innovations frequently have 57% (n=57) as high to moderate level of risk taking with 5% being low risk takers. This observation seems to confirm the noted literature review in Chapter 1 regarding levels of introduction of innovation by achievement oriented individuals. It is however confounding to note that 35% of the low innovators have high levels of risk taking.

Table 3.11 examines the relationship between innovations introduced by individuals with the individuals desire to achieve and determines to gauge the extent of the innovative individual relative to his/her desire to achieve. The row percentage suggest that 53% of the total individuals sampled who introduce innovations in their companies frequently have a high desire to achieve while 8% ranked as moderate and 1% low.

Table 3.11: Cross tabulation of the variables innovations introduced by individuals with individuals desire to achieve

	Desire to achieve	

Innovation introduced by individuals	Frequency Percent Row pct. Column pct	High	Moderate	Low	Total
	Never	4 4.00 66.67 5.06	1 1.00 16.67 5.26	1 1.00 16.67 50	6 6.00
	Rarely	22 22.00 68.75 27.85	10 10.00 31.25 52.63	0 0.00 0.00 0.00	32 32.00
	Frequently	53 53.00 85.48 67.09	8 8.00 12.90 42.11	1 1.00 1.61 50.00	62 62.00
	Total	79	19	2	100
		79.00	19.00	2.00	100.00

Table 3.12: Cross tabulation of the variables innovations introduced by individuals with commitment to experimentation

	Individuals commitment to experimentation				
Innovation introduced by individuals	Frequency Expected Percent Row pct. Column pct.	Always seeking new ways to experiment	Regularly seeking new ways to experiment	Rarely seeking new ways to experiment	Total
	Never or rarely	11 12.92 11.00 28.95 32.35	19 21.28 19.00 50.00 33.93	8 3.80 8.00 21.05 80.00	38 38.0
	Frequently	23 21.08 23.00 37.10 67.65	37 34.72 37.00 59.68 66.07	2 6.2 2.0 3.23 20.00	62 62.00
	Total	34	56	10	100
		34.00	56.00	10.00	100.00

Table 3.12 examines a cross tabulation relationship between innovations introduced by individuals with the individual's commitment to experimentation. This cross-tabulation aims at establishing the relationship between the innovative individual within the organisation

and their commitment to experimentation. The row percentages of the individuals who introduce innovations frequently in their organisations suggest that 23% of the total responses always seek new ways to experiment. 37% of these employees regularly seek ways to experiment while 2% rarely do so.

3.2.2.4.3 Barriers to developing Corporate Entrepreneurship Orientation in corporate organisations

Table 3.13 presents the barriers within the organisation that the respondents perceive as having an impact on their CE Orientation.

Table 3.13: CE Orientation: perceived level of barriers

	Very High	High	Moderate	Low	TOTAL
Established control systems	18%	23%	43%	16%	100%
Organisation structure	17%	35%	35%	13%	100%
Policies and procedures	9%	34%	42%	15%	100%
Management and leadership	12%	29%	44%	15%	100%
Strategic direction	20%	28%	34%	18%	100%
Organisational culture	2%	9%	64%	25%	100%

More than half of the individuals indicated all the barriers as moderately affecting the development of their CE Orientation. The respondents indicating the established control system as moderately affecting their innovation was 44% (n=44); organisational structure 35% (n=35); policies and procedures 42% (n=42); management and leadership 44% (n=44); strategic direction 34% (n=34) and organisation culture 64% (n=64). The observations revealed by the study suggest that the impediments to corporate entrepreneurship orientation are largely viewed as moderately impacting employees. This indicates that hindrances to pursuit of innovation should be considered minimal.

3.2.2.5 Item analysis

An item analysis of the three rotated factors and the introduction of innovations by individuals were performed to investigate the statistical measures such as the mean, variance, standard deviation and skew. The statistical significance for the same are reported later in this Chapter.

3.2.2.5.1 Item analysis for the three rotated factors

Table 3.14 presents an item analysis of the three rotated factors performed as a means to explore the means, standard deviation and other statistical measures of interest.

Table 3.14: Item analysis for the three rotated factors

	Factor 1	Factor 2	Factor 3
Descriptive name	**Opportunity Identification**	**Opportunity generation and exploitation**	**CE Orientation**
Number of items	100	100	100
Mean	3.14660	2.76450	3.28930
Variance	0.17188	0.21898	0.11393
Standard Deviation	0.54085	0.60538	0.37476
Standard error of mean	0.05409	0.06054	0.03748
Skew	-3.97000	-2.91000	-5.40000

3.2.2.5.1.1 Mean

The mean for **Factor 1 (Opportunity Identification)**, is indicated as 3.146 on a scale of 4.000 which shows that the majority of respondents perceived themselves as having an high incline towards identifying opportunities for innovation streams in the company.

The mean for **Factor 2 (Opportunity generation and exploitation)** is reflected as being located well above the median with responses of 2.7645 on a scale of 4.000. This seems to indicate that the majority of individuals operating in corporate organisations perceive themselves as being able to assess, develop, gather resources and implement innovation within their organisations. This is an interesting observation which seems to suggest that not all opportunities identified in organisations are brought to fruition.

The reported mean for **Factor 3 (CE Orientation)** is 3.289 on a scale of 4.000. This show the respondents perceive themselves as having a relatively high level of CE Orientation in the organisations in which they work.

3.2.2.5.1.2 Variance and standard deviations

As indicated in Chapter 2, the standard deviations are deviations from the mean. Measures recorded on the responses received in the study, revealed standard deviations of 0.54085, 0.60538 and 0.37476 for factors 1, 2 and 3 respectively. This indicates that more variability exists in Factor 3 than Factor 1 and 2. This means that the means for Factor 1 and 2 are more likely to be closer to the mean than Factor 3 would. However, the high value recorded is indicative that the data set is not tightly clustered around the mean. This variation in size is important as it provides an indication as to whether these are real or are due to chance. Christensen (2007:413) points out that the only way to confirm whether this arises by chance or is real is by means of inferential statistics, as done later the Chapter to determine whether the difference cannot reasonably be attributed to chance.

3.2.2.5.1.3 Skew

The measures of skew were recorded as -3.97, -2.91 and -5.40 for Factors 1, 2 and 3 respectively. These measures were considerably far from 0 in which a normal distribution would lie. As indicated in Chapter 2, when the larger frequencies of the data lean towards the lower end resulting in positively skewed measures, revealing an asymmetric positive skew for all the factors under consideration.

3.2.2.5.2 Item analysis for individuals introducing innovation in organisations

An item analysis was carried out on the level of introduction of innovation in organisations and is presented in Table 3.15.

Table 3.15: Item analysis of the level of introduction of innovations by individuals.

		Introduction of innovations by individuals
Opportunity Identification	**Size**	100
	Mean	2.24
	Standard Deviation	0.97566
	S.E.M	0.09757
	Variance	0.4355
	Skewness	-1.27

3.2.2.5.2.1 Mean

The mean for the variable known as "introduction of innovations by individuals" **is noted as 2.24 on a scale of 4.000 which shows that slightly more than half of the respondents perceived themselves as having a moderate incline towards introducing innovation streams into the company. This is very interesting and brings to bear the lack of commitment noted earlier whose effects trickles into the whole innovation process.**

3.2.2.5.2.2 Variance

A high variability was noted for the VV8 variable as 0.0976 which indicates that the variable responses are not concentrated around the mean. The variation indicated above was subjected to tests of significance later in the chapter to determine whether the difference in the group mean scores cannot reasonably be attributed to chance.

3.2.2.5.2.3 Skew

The measure of skewness of -1.27 is clearly different from zero and suggests an asymmetric positive skew just as evidenced with the three rotated factors. This indicates the deviation of the distribution from symmetry

3.3 TESTING THE STATISTICAL AND SUBSTANTIVE SIGNIFICANCE

As indicated earlier in this Chapter, the purpose of the study is to investigate the inherent link between CE Orientation and the pursuit of innovation. In this regard, the study formulates a clear notion to determine the link between these variables to indicate how they are related. In determining the significance and substance of the variables, the study tests the statistical association of the variables under consideration and examines the relationship between them. Antonius (2003:156) observes that a statistical association is something that can be observed objectively and measured.

In order to derive a more meaningful interpretation of the data set, the variable of the introduction of innovations by individuals **was split into two - the frequent introduction of innovation by individuals and those who rarely or never made introductions in the organisations. Firstly, the introduction of innovations was tested for statistical significance for the variables in Tables 3.9 to 3.12. These variables represent some independent entrepreneurial orientation concepts not covered in factor analysis above. The results are reflected in Table 3.16. Secondly, statistical and substantive significances were drawn for the levels of innovation introduced by employees and** the three rotated **factors mentioned earlier in this Chapter are reflected in Tables 3.16. Specifically, the one-sample Chi square (x^2) test and the t-test detailed in Chapter 2 are carried out on the variables under study.**

3.3.1 The one-sample Chi-Squared test

The one-sample chi-square test is carried out on individuals who have high levels of innovations in the company and those who rarely or never had innovation streams into the company. This test indicates the significant differences of some of the variables of interest posed in the study and is a determinant of accepting or rejecting the null hypothesis stated in Chapter 2. The significance level calculated for each of these variables provides information about the reliability of that correlation and provides a means to improve the reliability of the measure by indicating how free it is of errors from other causes.

Christensen (2007:416) points out that the most commonly used significance levels are 0.05 and 0.01. In this study, the level of significance used is 0.05 which indicates that the differences noted would only occur by chance only five times in a 100. Thus measures indicating p>0.05 imply that there are no differences. Conversely measures of p<0.05 reveal that a statistical difference has been observed suggesting the real difference to have occurred from other causes. It will be on this basis that the study will examine and draw is conclusions on the reflected results.

Table 3.16: Chi-square results from variables: Introduction of innovation in companies by individuals and selected variables

Variable	**Frequency of introduction of innovation**		**Chi-square value**	**P-value**
	Frequently	**Never/rarely**		
Introduction of innovations by company	62	38	22.6617	<0.0001***
Level of risk-taking	62	38	0.0009	0.9758
Desire to achieve	62	38	0.1247	0.7240
Commitment to experimentation	62	38	8.3415	0.0154 ***

P* statistically significant difference**

α < 0.05 (95% confidence level) **α < 0.001 (99% confidence level)**

Table 3.16 indicates that there is a high Chi-score of 22.6 and the low p-value of 0.0001 for the variables "frequent introduction of innovation by individuals" and "never or rare introduction of innovation by individuals" on their perception about the introduction of innovation by the company. The results obtained thus indicate that there is a statistically significant difference between the two variables reflecting the differing opinions held by the frequent introducers and rare or never introducers of innovation. The study shows that the frequent introduction of innovation by the company could contribute towards introduction of innovation by individuals. This does not come as a surprise as it was expected that the perception of innovation by

individuals with frequent introductions would be higher than those who rarely or never introducing innovations. This was statistically proven.

On the perception of the level of risk-taking, a low Chi-score of 0.0009 and high P value of 0.9758 was revealed for the variables "frequent introduction of innovation by individuals" and "never or rare introduction of innovation by individuals". This result reflects no statistically significant difference between the variables tested of people who introduced innovations frequently on their feeling towards a high level of risk taking and the low or never introducers of innovation who did not have a propensity towards risk-taking. It was however expected that risk taking would be a dependent variable of introduction of innovations but could not be statistically proved.

The variables "frequent introduction of innovation by individuals" and "never or rare introduction of innovation by individuals" had a low Chi-score of 0.1247 and high p-value of 0.7240 which indicates that there is no statistically significant differences between these variables as regards their perception of the desire to achieve. This was also surprising to note bearing in mind that the level of achievement was construed to directly impact on innovations but could not be proven statistically.

The variables "frequent introduction of innovation by individuals" and "never or rare introduction of innovation by individuals" had a high Chi-score of 8.341 and low p-value of 0.0154 indicates that there is a statistically significant difference between these variables on the perception of commitment to experimentation. As was expected, the level of commitment to experimentation was high for the levels of introduction of innovation to the company and was proved statistically.

There is however a caution advanced by Diamantopoulos and Schlegelmilch (2000:58) to the effect that the combined frequencies in a cross-table must be 5 or larger for the results to be meaningful. This was not the case in the derived results noted in the chi-square tests above. Failure to this, as was noted in our case, other tests were done in supplement. The t-test described in Chapter 2 was therefore done on the three factors identified earlier in this Chapter as Factor 1 (opportunity

identification), Factor 2 (opportunity generation and exploitation) and Factor 3 (CE orientation). These three rotated factors were compared to the introduction of innovation by individuals and reflected in Table 3.17. The aim was to establish if the mean scores reported had statistically significant differences. Additionally, the Mann-Whitney test described in detail in Chapter 2 was conducted and the values are reported Table 3.17.

3.3.2 The t-test

The significance level for the three rotated factors was carried out using the t-test and is reflected in Table 3.17. The Mann Whitney results portray a statistically significant difference for opportunity identification **(0.0059) and** opportunity generation and exploitation **(0.0078). This means that the individuals who introduce innovation in the organisation commit themselves more into opportunity identification and trying to converge those opportunities into reality. This could be explained by the frequent introducers of innovation in the company being committed to experimentation and thriving in companies that introduce innovations as depicted in Table 3.16. It is however surprising that risk taking and desire to achieve which are regarded in literature as essential ingredients to innovation were not statistically proved.**

As was expected, there was no statistical difference was noted for CE orientation (0.2517). In the advent of the statistically significant differences noted above, CE orientation would thrive in the atmosphere where continual innovations are inherent. In this study, this was not the case.

Table 3.17: t-test: Comparison of the three rotated factors with the level of individuals introducing innovations in the organisation

	Introduction of innovations	Mean	Standard deviation	Mann Whitney

Factors	Frequently	Never / rarely	Frequently	Never / rarely	Frequently	Never / rarely	
Opportunity identification	62	38	3.2339	3.0044	0.5486	0.5030	0.0059***
Opportunity generation and exploitation	62	38	2.8886	2.5622	0.5220	0.6809	0.0078***
CE Orientation	62	38	3.3097	3.2561	0.4185	0.2918	0.2517

P* statistically significant difference**

α < 0.05 (95% confidence level) **α < 0.001 (99% confidence level)**

3.3.2.1 t-test: Comparison of opportunity identification and the introduction of innovation by individuals in organisations.

Comparison of opportunity identification **and the level of** introduction of innovations by individuals **in the organisations in which they work are reflected in Table 3.17. The mean for Factor 1 (**Opportunity Identification**), when compared the levels of individuals introducing innovations in the organisation reveals a score of 3.2339 on a scale of 4.000 for those introducing innovation in the organisation frequently. This compares with 3.0044 on a scale of 4.000 for individuals who never or rarely introduce introductions in their organisation. These results indicate that individuals who frequently introduce innovations in the organisation perceive themselves as having a relatively higher propensity towards identifying opportunities than those who rarely of never make such innovations. The variability is rather high at 0.54 and 0.50 for frequent and rare/never introducers of innovation respectively.**

- **The comparison between frequent introduction of innovations and never or rare introduction of innovation by individuals** (introduction of innovations) **on their perception of** opportunity identification **revealed a statistically significant difference between the two variables.**
- Introduction of innovations **by individuals in organisations seem to be influenced by the introduction of innovations by the company as demonstrated in Table 3.16.**

- **Individuals seem to be committed to experimentation and compliment innovations introduced in the organisation (Refer Table 3.16).**

3.3.2.2 t-test: Comparison of opportunity generation and exploitation and the introduction of innovation by individuals in organisations.

The comparison of the relationship between Opportunity generation and exploitation **and the level of** introduction of innovations by individuals **from the responses received is presented in Table 3.17. The means for Factor 2 (**Opportunity generation and exploitation) **is compared to the levels of individuals introducing innovations in the organisation frequently and rarely/never. This returns a score of 2.8886 on a scale of 4.000 and 2.5622 on a scale of 4.000 for individuals who never or rarely introduce introductions in their organisation respectively. This reflects the general tendency of innovative individuals towards seeking to ensure that the opportunity identification is put through the exploitation process than the individuals who rarely or never make such innovations. The variability is, however, rather high at 0.5220 and 0.6809 for frequent and rare/never introducers of innovation respectively.**

- **There was statistically significant differences found between people who introduce innovations in the company and those who rarely or never introduce innovations in the companies as regards their perception of opportunity generation and exploitation.**
- **Individuals perceive getting ideas on how to make innovations better and implementing innovative ideas with a high degree of importance. Organisational processes also receive a significant level of importance (Refer Table 3.8).**

3.3.2.3 t-test: Comparison of corporate entrepreneurial orientation and introduction of innovation by individuals in organisations.

The factor CE Orientation **compared to the level of** introduction of innovations by individuals **in the organisations in which they work is presented in Table 3.18. The means for Factor 3** (CE Orientation)**, has a score of 3.3097 on a scale of 4.000 and 3.2561 on a scale of 4.000 for individuals frequently and those who never or rarely introduce introductions in their organisation respectively. The innovative**

individuals seem to have a high CE Orientation than those who are not innovative. The variability is rather high at 0.532 and 0.0473 for frequent and rare/never introducers of innovation respectively.

- **There was no statistically significant difference found between** introduction of innovations by individuals **and the** CE orientation**. Significant differences were found between people who introduce innovations in the company and those who rarely or never introduce innovations in the companies as regards their perception of CE orientation.**
- **Barriers to developing CE orientation in an organisation is seen to moderately affect the organisation as regards the control systems, organisation structure, policies procedures and strategic direction (refer Table 1.3).**

3.3.3 Correlation of the three rotated factors

A Pearson correlation coefficient test as described in Chapter 2 is conducted on the three rotated factors (opportunity identification; opportunity generation and exploitation; and CE orientation**) and presented in Table 3.18.**

Table 3.18: Pearson product moment correlations **among the three factors**

	Factor 1	**Factor2**	**Factor3**
Factor 1	1.00000	0.68473 p<0.0001	0.41644 p<0.0001
Factor 2		1.00000	0.19322 p 0.0541
Factor 3			1.00000

P*** statistically significant difference

α < 0.05 (95% confidence level) α < 0.001 (99% confidence level)

The purpose of this test is to investigate the correlation and statistical significance of these factors. As indicated in Chapter 2, the greater the correlation differed from 0, the stronger the relationship is. The correlations portray a stronger statistical association between Factor 1 **(Opportunity identification)** and 2 **(Opportunity generation and exploitation)**; a moderate one between Factor 1 **(Opportunity identification)** and 3 **(CE orientation)** and a weak correlation between Factor 2 **(Opportunity generation and exploitation)** and 3 **(CE orientation)**. These correlations are described below.

The correlation between **opportunity identification** and **opportunity generation and exploitation** is 0.68473. This reveals that a strong positive relationship exists between these variables and a positive increase in either of the factors occasioning an equal and corresponding increase in the other. Thus individuals who have the tendency to identify opportunities in organisations tend to bring to fruition such motions of generating and exploiting these innovations at a high level. This correlation has a reliability coefficient of $p<0.0001$, which indicates that this correlation is significant at a 1% level.

The correlation coefficient of the correlation between **CE Orientation** and **opportunity identification** is noted as positive 0.41664. This reveals a modest positive relationship that exists between these factors. In this situation, an increase in one factor will occasion an equally moderate increase in the other. Thus the individuals who have an incline to seeking opportunity identification tend to have a modest CE Orientation. The reliability coefficient of $p<0.0001$ was reported indicating that this correlation is significant at a 1% level.

The correlation coefficient of the correlation between **Opportunity generation and exploitation** and **CE Orientation** indicates a low positive correlation coefficient of 0.19322 and represents the weakest correlation between the three factors observed. It indicates that individuals who seek to generate and exploit opportunities within organisations have a weak drive with CE Orientation.

3.4 CHAPTER SUMARY

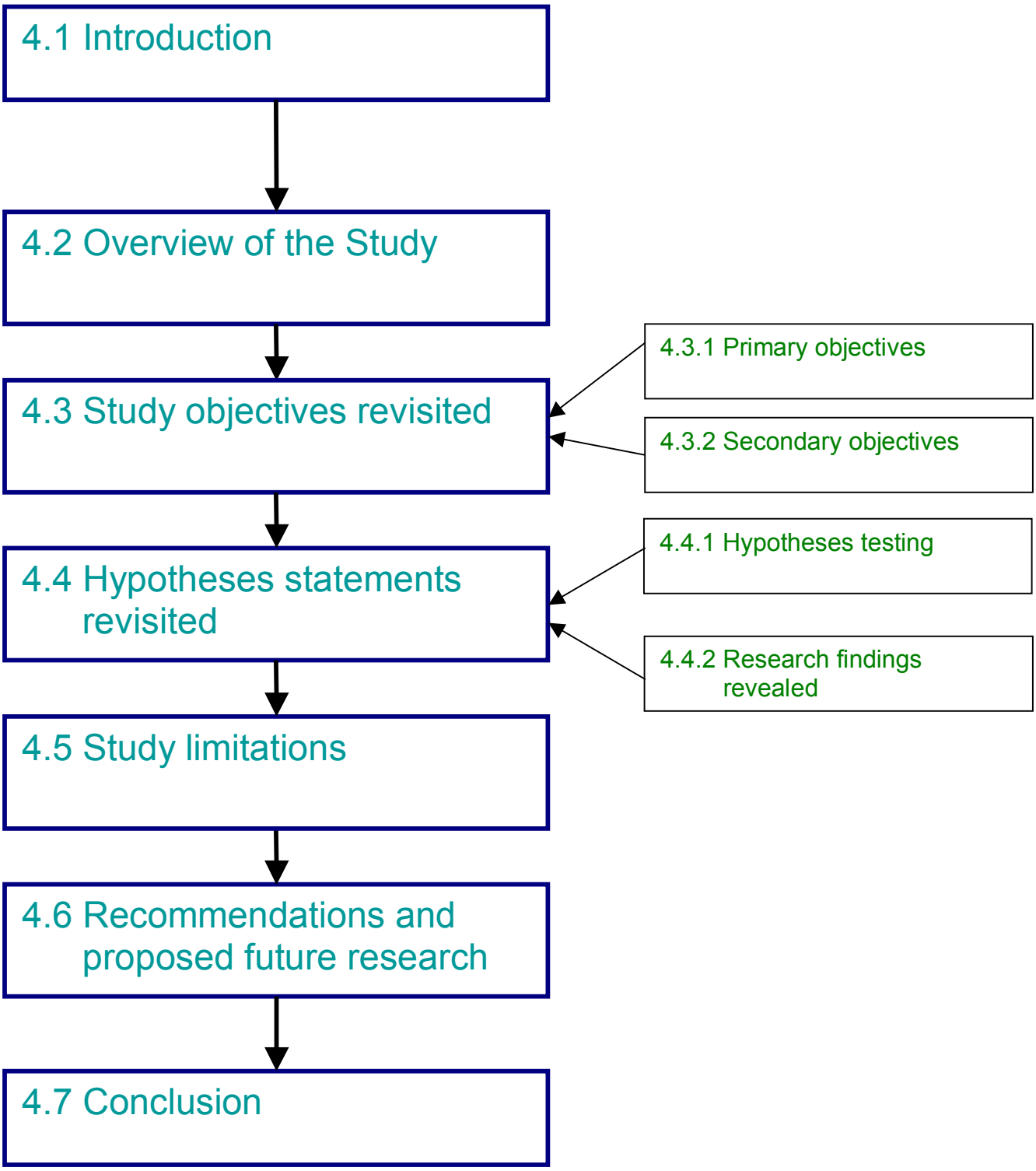
This chapter has presented the statistical analysis of the responses received from respondents who participated in this study which is seeking to establish the link between

CE Orientation and the pursuit of innovation. The importance of this study was outlined to show the academic and practical significance. The response rate was reported on. Descriptive statistics encompassing personal and business demographical profiles was reported. This Chapter dealt with the application of the statistical methods described in the previous Chapter.

As a conduit to facilitate validity and reliability of the measuring instrument, Factor analysis was carried out which confirmed a total of three factors with very high construct validity. The first two supported the **pursuit of innovation** and were **labelled opportunity identification** and **opportunity generation and exploitation**. The other was **CE Orientation.** The results of the statistics were discussed as they were presented.

Testing the statistical significance involved the Chi-square, t-test and the Mann-Whitney tests which outline the differences that seek to answer the research question. These results will be used for the empirical conclusions in Chapter 4.

CHAPTER FOUR: CONCLUSION AND RECOMMENDATIONS



CHAPTER 4
CONCLUSION AND RECOMMENDATIONS

4.1 INTRODUCTION

The study has examined the CE orientation components for the effects of the relationship that it maintains with innovation in the corporate environment depicted in Botswana. It provided an overview of how individuals in such organisations subscribe to these two factors and translate them into meaningful gains in the company. On the outset, breeding such entrepreneurially inclined organisations and individuals provides immunity against innovation inertia and therefore permeates the nucleus of corporate entrepreneurship. There was no known study carried out in Botswana focusing on the components of CE orientation and the introduction, generation and exploitation of innovation within corporate borders. This was rather surprising given that the evolution of the corporate world needs to narrow the knowledge vacuum in CE to remain informed and competitive in the universal arena. This study was noted as one initiating and encouraging the generation of academic and practical exploitation in the CE arena in Botswana.

In the previous Chapter the research findings were analysed, presented and discussed as a means to providing evidence on the relationship under study. This chapter develops a summary of the confirmed results of the study based on the empirical information obtained from the results reflected in Chapter 3. The objectives and the hypotheses of the study are revisited and interpretations obtained from the correlations built to understand the hypotheses. Statistical significances arrived at in Chapter 3 are used to provide a basis for accepting or rejecting the hypotheses in the study. The empirical results obtained provide the researcher with the contribution of the research in academic and scientific terms.

This Chapter also points out the inherent limitations faced by the researcher and indicates the inherent management implications the study brings to bear. Study recommendations for future research are pointed out to chart out the areas of academic interest and culminate in a final conclusion of the study.

4.2 OVERVIEW OF THE STUDY

The literature review contained in Chapter 1 seeks to provide a platform through which the research question is structured. This literature review culminates in constructing a CE Orientation model in which the link between CE Orientation is explored in relation to the pursuit of innovation inherent in a corporate environment. Three important constructs are developed for the study namely CE, CE Orientation, and creativity and innovation within corporate borders.

This study begins by traversing through the concept of CE. The essence of CE is defined and discussed and the fundamental role that CE seems to play within the changing circles of business environments is brought to the fore. Theoretical models representing the concept of CE are explored to highlight the metamorphosis of the schools of thought that brings CE to bear. The four models seem to suggest that the domain of CE mirroring on the individual entrepreneur forms a critical and important aspect in creating an entrepreneurial culture within corporate borders. Through the development of an orientation inclined towards fostering entrepreneurship (CE Orientation), arguments are provided for the architectural design of an entrepreneurial organisation.

CE Orientation was given an operational definition in the study. Content analysis was done to understand the CE Orientation drivers in corporate organisations. The contributing studies revealed the five drivers that seemed to give rise to CE Orientation as risk-taking, proactiveness, competitive aggressiveness (achievement orientation), focused knowledge and autonomy. The thought process was that these drivers leverage entrepreneurship and with it innovative capacities and capabilities. It is shown that the assertion of CE orientation ignites the innovation process within organisations yielding innovations.

The main aim of the study was to look into the CE Orientation of individuals operating in corporate organisations in Botswana and the pursuit of innovation that these individuals portray. The study concentrated on six key factors of CE Orientation and four factors of innovation as described in the CE Orientation framework in Chapter 1. This was the first study that demonstrates the effectual relationship between CE Orientation and pursuit of innovation in Botswana

The literature review of the study was fundamental in the respect that the study constructs and variables were developed from this review. This is reflected in Figure 1.13. The framework greatly assisted in providing a vehicle to developing the research instrument that enabled the study answer the research question.

4.3 STUDY OBJECTIVES REVISITED

Through the literature review in Chapter 1, the research posed the question that do companies in Botswana have a corporate entrepreneurship orientation which results in the pursuit of innovative opportunities?

This question nestled in primary and secondary objectives of the study which are revisited and presented below:

4.3.1 Primary objectives

The study looked at the extent of the inherent manifestation of CE Orientation in companies in Botswana and its linkage to the pursuit of individual employee's innovation within corporate boundaries.

4.3.2 Secondary objectives

The study also developed secondary objectives, which were to:

- Identify the prerequisites and factors of CE Orientation;
- Identify the individual employee's perceptions and importance of innovation factors in established companies; and
- Examine the relationship between CE orientation and innovation.

The primary objective was achieved as a result of the extent to which CE Orientation was measured with the innovations introduced in the organisation as developed by $H1_o$.

The first secondary objective was met by carrying out an extensive literature review as well as a content analysis of the CE Orientation drivers.

The second secondary objective was achieved by looking at the innovations introduced by determining the extent of individuals' pursuit of innovation relative to the innovations introduced in the organisation as developed by $H2_o$

The third secondary objective was achieved by examining the extent of CE Orientation of individuals when measured with the individuals' pursuit of innovation as developed by $H3_o$

4.4 HYPOTHESES STATEMENTS REVISITED

4.4.1 Hypotheses testing

The study performed a hypothesis testing procedure where the null or alternative hypothesis was accepted or rejected. Following the hypothesis developed in Chapter 2, the significance level was determined in Chapter 3 as 0.05 and 0.01. Christensen (2007:416) alludes that the significance level is a critical probability in choosing between the null hypothesis and the alternate hypothesis. The levels of 0.05 and 0.01 indicate the levels of significance that are considered too high or too low to determine the support of the null hypothesis. Thus if the null hypotheses is being tested true, if the probability of the occurrence of the observed data is smaller than the level of significance, then the data suggests that the null hypotheses should be rejected.

Table 4.1 indicates that two types of errors can be committed in hypotheses testing with the possibility of four situations. Under these situations, the null hypotheses can be either true or false and the decision to accept or reject the null hypotheses will emanate from a statistical decision. The results are reflected in the empirical results section 4.3.4.

Table 4.1: Type I and Type II errors in hypotheses testing.

Decision mode	Decision	
	H_o is true	**H_o is false**
H_o is not rejected	Correct decision (1-α)	Type II error (β)

H_o is rejected	Type I error (α)	Correct decision (1 – β)

Source: Diamantopoulos and Schlegelmilch (2000:138).

4.4.2 Research findings revealed

4.4.2.1 The prerequisites and factors of Corporate Entrepreneurship Orientation

Confirmatory Factor analysis in Table 3.6 carried out to establish the validity of the factors tested in the study revealed that CE orientation existed but only as one factor in the study. The factor embraces in part and all the elements of risk taking, proactiveness, attitudes, focused knowledge and the need for achievement. This observation is contradictory to studies that seem to delineate these elements as separate elements of CE orientation (Knight, 1997:214, Lumpkin and Dess, 1996:135; Rauche, *et al.*, 2004:165). The study however found that CE orientation in Botswana is moderately affected by the barriers noted by organisational structure, policies and procedures, established control systems, management and leadership and organisational culture.

The CE Orientation of an individual operating within the corporate boundaries in Botswana pre-empts the degree to which such an individual positions himself or herself as an entrepreneur within corporate borders. By acting as an entrepreneur within corporate boundaries, the affinity towards the pursuit of innovation is greatly enhanced.

4.4.2.2 Hypothesis 1 testing

The hypothesis statement tested read as follows:

$H1_o$ Individuals with a low CE Orientation will not pursue innovation opportunities that make organisations entrepreneurial.

$H1_a$ Individuals with a high CE Orientation will pursue innovation opportunities that make organisations entrepreneurial.

In this Hypothesis, the study wanted to establish extent of correlation between the levels of **introduction of innovations by individuals** (VV8) in the company and their **CE Orientation** (F3).

The descriptive statistics in Table 3.9 indicate that that the barriers to CE Orientation are mostly reported as moderate for the organisations control systems, structure, policies and procedures, management and leadership, strategic direction and organisational culture.

Cross tabulations were performed of the introduction of innovations with selected variables of interest. The attitudes and perception of the respondents to innovation within the company borders was that:

- Table 3.10 indicates that innovative individuals in organisations tend to have a moderate to high level of risk taking. This is a reflection of the ability to place a high stake in achieving a higher reward for the innovations introduced.
- Table 3.11 indicates that individuals who frequently introduce innovations in the organisations in which they work have a high desire to achieve. This confirms the observation above in which the same trend was noted in the risk attitude. The risk-reward pay off tends to provoke the desire to achieve.

The Chi-square test was used to indicate the statistical significance of various variables posed in the research questions. A high Chi square figure and statistical significance was revealed for the perception of introduction of innovations by the company and the commitment to experimentation. The mean scores in Table 3.16 suggest that innovative individuals seem to have a high CE Orientation than those who do not introduce innovation thrive on their commitment to innovate as well as the innovations introduced by the company.

Factor analysis confirmed one factor tested by the study as CE orientation. This first hypothesised relationship was tested using a Mann-Whitney test (refer Table 3.17) which showed no statistically significant difference between the variables **introduction of innovations by individuals** (VV8) in the company and their **CE Orientation** (F3) of 0.251. This interaction effect indicates that entrepreneurs who introduce innovation consistently within the company perceive a higher CE Orientation than those who have a

low level of introduction. This suggests that CE Orientation acts as an accelerator of innovations. Based on the tests conducted and the empirical results achieved, **the null hypothesis is rejected and the alternative one accepted**.

4.4.2.3 Hypothesis 2 testing

The hypothesis statement tested read as follows:

$H2_o$ Individuals who have a low perception of the innovative factors will not pursue innovation opportunities that make organisations entrepreneurial.

$H2_a$ Individuals who have a high perception of the innovative factors will pursue innovation opportunities that make organisations entrepreneurial.

The hypothesis was tested through the correlating the levels of **introduction of innovations** by individuals (VV8) with their **pursuit of innovation** (F1 and F2).

Cross tabulations were performed of the introduction of innovations with selected variables of interest. The Chi-square tested the statistically significance of these variables. The knowledge, attitudes and perception of the respondents to innovation within the company borders was that:

- Table 3.9 indicates that individual introducing innovations operate in innovative companies.
- Table 3.12 shows that, individuals who frequently introduce innovations in the organisations in which they work regularly seek new ways to experiment.

Mean scores were noted the coefficient of the interaction between introduction of innovations and the pursuit of innovation as 2.88 on a scale of 4 with a standard deviation of 0.522 is a significant variance at $p<0.0001$.Table 3.18 indicates that these two factors representing the pursuit of innovation namely have a very high correlation with a Pearson correlation value of 0.68473.

In this hypothesis it was posited that the group having a low introduction of innovations do not pursue innovative opportunities. Supportive of $H2_o$, a significant ($p=0.0005$) interaction was revealed. The t-test illustrated in Table 3.18 show statistically significant Mann Whitney differences for the pursuit of innovation factors when compared to introduction of

innovation by individuals. The opportunity identification factor recorded a score of 0.0059 while opportunity generation and exploitation registered 0.0078. Thus, the low level of introduction of innovations by individuals culminates in the restraint to the pursuit of innovation. This study therefore refines these findings by indicating the importance of inculcating innovation streams within the innovation process. On the basis of the tests conducted and the empirical results achieved, **the null hypothesis is accepted and the alternative one rejected**.

4.4.2.4 Hypothesis 3 testing

$H3_o$ There is no relationship between CE Orientation and the pursuit of innovation.
$H3_a$ There is a relationship between CE Orientation and the pursuit of innovation.

In the third hypothesis, the correlation for the relationship between **CE Orientation** (F3) was compared with the **pursuit of innovation** (F1 and F2).

The primary objective was tested by correlation analysis. The pursuit of innovation was modelled around the factors Opportunity identification and Opportunity exploration and exploitation which were determined to be significantly associated with CE Orientation on analysis. Mean scores were recorded and a co-relational analysis (Pearson's r) was run on the CE Orientation scale against other scales. The use of this technique is established in Chapter 2. Table 3.18 display the results which indicate that these two factors have a very high correlation with a Pearson correlation value of 0.68473 (statistically significant at $p<0.0001$). The results present a linear relationship between the CE Orientation and the pursuit of innovation.

According to hypothesis 3, the study expects that the position occupied by a CE Orientation proclaims a lower influence over corporate entrepreneurs in their endeavour to seek, generate and exploit opportunities. The Pearson coefficients of correlation negate this hypothesis. In Table 3.18, the Pearson correlation coefficient shows that the there is a moderate correlation between CE Orientation and the Opportunity identification with statistical differences at a significant level of $p=<0.0001$. The correlation between CE Orientation and Opportunity generation and exploitation was 0.19322 and p 0.0541 showing significant statistical difference. The results point to a relationship being

established between CE Orientation and the pursuit of innovation. Thus, based on the tests conducted and the empirical results achieved, **the null hypothesis is rejected and the alternative one accepted**.

4.4.2.5 Reviewing the relationships

In reviewing the relationships built around the hypotheses, the study finds strong support for Hypotheses 1 and 3, but no support for Hypothesis 2. This indicates that in general, the establishment of a CE Orientation does have a significant impact on the pursuit of innovation streams. The results thus show that companies with an inherently high CE Orientation receive a higher benefit from the exploits of innovation which improves the rate of innovation flows. In this study, the significant average responses by those individuals who have a low perception of innovative factors do negate the optimisation of these innovations. This provides a very interesting perspective as there could be other factors that impact on the inhibition of innovation streams within company boundaries. In this study, the speculation of the inhibition of the levels of innovation introduced could be attributed to the barriers to CE noted as moderate.

The results of this study clearly highlighted the importance of stimulating the pursuit of innovation through CE Orientation. The study made an interesting observation by establishing whether the innovative process inherent in corporate organisations in Botswana arises as a destiny or conduit of CE Orientation. More specifically, the study addressed the issue of if and how innovative streams could nestle in companies. The magnitude of this effect depicted CE Orientation as having a catalytic effect in pre-empting the pursuit of innovation. The emphasis is therefore embedded on the premise that for companies in Botswana to be innovative, it is apparent that CE Orientation is cultured in the on-goings of the company. Additionally, the barriers to CE orientation could probably deserve attention.

4.5 LIMITATIONS OF THE STUDY

The study makes note of some limitations encountered.

The study was conducted on a cross-sectional basis and the conclusions therefore allow the analysis to be conducted in a specific situation of time. The empirical results used as the basis for drawing findings of this study therefore had relatively short period horizons for the length of study and not the overall conduct through time. In some way, this has a great bearing on the interpreted results reported on in this study.

The study looked at a more generalised situation of the companies operating within Botswana. The interpretation should be exercised with care since emergent sector results could be entirely different from those reported in this study. It would therefore be premature to infer the study results to other countries.

4.6 STUDY RECOMMENDATIONS AND PROPOSED FUTURE RESEARCH

The study has identified that there is a need to establish the enablers that encourage CE Orientation within corporate organisations boundaries. This study identified five of such enablers through factor analysis conducted which indicated that these were highly correlated. It would be of interest to see how the level of entrepreneurship is affected by an increased number of factors and how these can improve or reduce entrepreneurial levels in an organisation.

There are no studies done in the area of Corporate Entrepreneurship Orientation in Botswana. Consequently, there is no secondary data available which makes it difficult for any comparisons of the study results.

The hierarchical position of the respondents was not a parameter used in the study though there were almost an equal representation from the management and supervisory staff. It would be of interest to see how these two categories of staff respond to the CE Orientation and the pursuit of innovation. Additionally, it would be interesting to explore how the leadership behavioural characteristics impact on the CE Orientation.

A longitudinal study of the parameters under consideration is recommended as a means to exploring and determining the responses of the linkage between CE Orientation and the pursuit of innovation over a period of time.

The study has been carried out within the geographical confines of Botswana. It would be interesting to relate how CE orientation manifests across several regions in Africa. Such a study would compare a country such as Republic of South Africa which has the highest economic base in Africa with the rest of the African states.

4.7 CONCLUSION

This study proposed considering the promotion of CE Orientation as a means to having individuals in corporate organisations engaging in the pursuit of innovation. The study presented a framework with the related variables which were used in linking the CE Orientation to the pursuit of innovation within corporate borders. Based on the hypotheses results, it was established that there is a CE Orientation in Botswana which leads to the pursuit of innovation. However, the level of innovation is affected by the low perception of responses to the innovation process (opportunity identification, generation and exploitation).

This study empirically made pertinent observations which suggest that:

- There is a link between CE Orientation and the pursuit of innovation in corporate boundaries as a conduit for enhancing entrepreneurial activity in companies. Such an orientation is coterminous with innovation brewed in organisations which invariably culminates in innovative products. The integration of the innovation process and entrepreneurship actions produces synergy that propels the organisations ability to adapt, develop and innovate.

- For an optimal CE Orientation, the organisation needs to establish systems and structures that are not counter productive to the encouragement of CE inherent in an entrepreneurial organisation. The organisation must provide a leeway for infusing decisions to act entrepreneurially within its organisational systems without hindrance.

- CE manifests itself in established organisations through individual, team and organisational processes that require continuous assessment and development. Certain prerequisites are necessary for CE Orientation to be embedded in corporate

organisations in the form of risk-taking, proactiveness, need for achievement, focused knowledge and autonomy.

This research therefore determined that within corporate boundaries, CE activities imposed through CE Orientation could largely integrate with the innovative capacity yielded as a result of individual initiatives to the pursuit of innovation. It also determined that large corporate firms can become entrepreneurial organisations by embracing the tenets of encouraging and developing entrepreneurship within the organisation. With entrepreneurship embedded in individuals within an organisation's boundaries, the pursuit of innovation becomes more profound with the individual committed to pursuing innovation being afforded the opportunity to do so. The innovation process must therefore be legitimised in all respects to open the organisation to the exploitation and exploration of innovation.

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APPENDIX A

- RESEARCH INSTRUMENT : QUESTIONNAIRE -

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Department of Business Management
Chair in Entrepreneurship

Research Questionnaire

CORPORATE ENTREPRENEURSHIP ORIENTATION IN BOTSWANA:
Pursuing Innovating opportunities

The primary objective of this study is to determine the extent to which corporate entrepreneurship orientation manifest in companies. The study also attempts to establish the extent to which corporate entrepreneurship orientation links with the pursuit of innovative capacity and individual initiatives within the corporate structure.

Instructions for completion:

I. The questionnaire is aimed at staff (from supervisor level above) within a corporate organisation in their capacity as individuals.
II. Please answer the questions as objectively and honestly as possible.
III. Place a cross (x) in the space provided after each question which reflects your answer the most accurately.
IV. Where asked for comments or to express your own opinion, keep answers short and to the point.
V. Your answer will be treated confidentially and used solely for academic purpose.

Please feel free to contact the researcher if you need any information concerning the questionnaire

Researcher:	Michael D O Nyanjom P O Box 45126 Riverwalk, Gaborone BOTSWANA	Study Leader:	Dr Melodi Botha
Tel	(267) 72255882	Tel	(00)(27)(12)420-4774
Email	nyanjom@info.bw	Email	melodi.botha@up.ac.za

SECTION 1: DEMOGRAPHIC DETAILS

For office use only

1. Your gender

Male	1	
Female	2	V1

2. How old are you? …….. ……Years V2

3. Your race

Black	1	
Coloured	2	
Indian	3	V3
White	4	
Other (specify)	5	

4. Your position in the company

V4

5. Your highest level of education attained

Primary (Std. 1- Std. 7)	1	
Secondary (Form 1 – Form 6)	2	
Tertiary (Technikon /University)	3	V5
Post Graduate	4	
Other (specify)	5	

6. How long have you been with the company?

……Years V6

7. In which sector does your company operate (e.g. Service, retail, Manufacturing, Food, Education, Mining, and Medical etc.)?

V7

Innovation refers to the implementation of new work processes, new ideas, new products or services or exploring new markets.

SECTION 2: INNOVATION

8. How often do you introduce new innovations to your company?

Never	1
Rarely	2
Frequently	3

V8 ____

9. How often does you company introduce new innovations?

Never	1
Rarely	2
Frequently	3

V9 ____

10 To what extent are the following important to you?

	Very Important	Fairly important	Fairly unimportant	Not important	
Getting ideas on how to make innovations better					V10 ____
Implementing innovative ideas					V11 ____
The human processes that explore and exploit innovation					V12 ____
The organisational processes that explore and exploit innovation					V13 ____

11 How would you rate yourself on the following concepts within your company?

	Excellent	Good	Average	Poor	
Your expertise in terms of knowledge gained in the company					V14 ____
Your expertise in terms of experience gained in the company					V15 ____
Your level of motivation					V16 ____
Your creative thinking skills (combining rather unrelated elements to develop new ideas)					V17 ____
Your entrepreneurial skills (creativity, risk-taking, opportunity identification, etc)					V18 ____
The management of creativity and innovations.					V19 ____

To what extent do you agree with the following?

No.	QUESTIONS	STRONGLY DISAGREE	DISAGREE	AGREE	SRTONGLY AGREE	For office use only
12	I am encouraged to freely air any opportunity I identify which would be beneficial to the company					V20
13	Any change in me is exciting and rewarding					V21
14	I like looking at problems with a new approach					V22
15	There is competition among individuals to encourage the identification of new and better ways of producing products, work methods or processes					V23
16	The company is persistently looking for new ways of improving its product or processes					V24
17	Innovativeness and creativity are thought of as important in my work place					V25
18	The company in which I work critically reviews any new concept presented by workers					V26
19	Enough feedback is given by the company on any innovative initiative that employees bring forward					V27
20	Employees are provided a platform to develop any new concept if found beneficial to the company					V28
21	I prefer problems for which there is no precise solution					V29
22	There is a lot of management support to secure any resource(s) needed to implement any new idea					V30
23	It is easy for employees to seek and obtain help in exploring any new initiative they have					V31
24	When required, funding is made available by the company in the event of new initiatives					V32
25	There is no restriction imposed on a new initiative introduced in the company					V33
26	The company is open to testing any new initiatives brought forward by employees					V34
27	Mistakes that arise from implementing any new initiatives in the company are taken as a learning experience					V35
28	The control over implementing a new initiative is implemented easily					V36
29	All new initiatives are tracked to provide maximum learning outcomes of the project					V37

SECTION 3: CORPORATE ENTREPRENEURSHIP ORIENTATION

Please rate yourself on the following:

For office use only

30 Your level of risk-taking

High	1	V38
Moderate	2	
Low	3	

31 How committed are you to experimentation within your company?

Always seeking new ways to experiment	1	V39
Regularly seeking new ways to experiment	2	
Rarely seeking new ways to experiment	3	

32 What are your goals that you wish to achieve in your company?

Goal 1	V40
Goal 2	V41
Goal 3	V42

33 To what level would you rate your desire to achieve in your company?

High	1	V43
Moderate	2	
Low	3	

34 How much do you like doing the following types of work?

	Never	Rarely	Frequently	
Work which requires lowest effort				V44
Work which is repetitive				V45
Work which is challenging				V46
Abstract work where I decide what to do				V47

35 What are the level of barriers you have to overcome in your organisation in terms of:

	Very High	High	Moderate	Low	
Established Control systems					V48
Organisation structure					V49
Policies and procedures					V50
Management and leadership					V51
Strategic direction					V52
Organisational Culture					V53

To what extent do you agree with the following?

No.	QUESTIONS	STRONGLY DISAGREE	DISAGREE	AGREE	SRTONGLY AGREE	For office use only
36	I evaluate the potential success of any project with the level of risk undertaken					V54
37	I do not act under conditions of uncertainty					V55
38	The company encourages employees to take certain calculated risks					V56
39	I prefer to lead rather than to follow in the business areas that would give my company a competitive advantage					V57
40	I like taking personal responsibility in whatever I do in the company					V58
41	I like finding out how our operations, processes or products could be made to work even better					V59
42	I prefer to strategically plan ahead to make sure that the chances of my success are increased					V60
43	I prefer to have a high level of independence in what I do					V61
44	I am open to new information or ideas					V62
45	I prefer to work alone					V63
46	Conventions and rules are meant to be broken					V64
47	I acquire my knowledge by learning from the results of what I do					V65
48	Knowledge flows freely and openly at my work place and assists in decision making					V66
49	I concentrate my efforts on the successes that I am able to achieve from what I do					V67
50	I am encouraged to be aware of what happens in departments other than that which I work					V68
51	I always think about attaining a set achievement goal					V69
52	I act towards attaining the needed action to achieve the results desired					V70
53	I constantly give due consideration to the expectation of success or failure on my action					V71
54	I am aware of perceived barriers (personal or external) to my achievement and seek help to overcome such perceived barriers					V72

THANK YOU FOR PARTICIPATING IN MY RESEARCH STUDY

APPENDIX B

- LETTER TO CSO BOTSWANA -

Michael D O Nyanjom

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Chair in Entrepreneurship
Department of Business Management

20 November 2006

Central Statistics Office
Gaborone
BOTSWANA

Sear Sir or Madam,

RESEARCH PROJECT ON CORPORATE ENTREPRENEURS

I am currently conducting research on **Corporate Entrepreneurs in Botswana: pursuing innovative opportunities.** The research defines corporate entrepreneurs as those working in large organisations with a work-force of over 100 employees. This research forms part of my MPhil studies at the Department of Business Studies at the University of Pretoria.

I would like to draw a random sample of 50 organisations from the population frame of large organisation to facilitate the distribution of the research instrument in form of a questionnaire. To this end, your assistance in providing a list of organisations with more than 50 employees will be highly appreciated. This information will be used for academic research purposes only

Thanking you in anticipation.

Yours Faithfully,

M O Nyanjom
Student Number 25408756