

# **Corporate Entrepreneurship and Organisational Performance in the Information and Communications Technology Industry**

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**A research report submitted to the Faculty of Commerce, Law and  
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## **ABSTRACT**

Corporate Entrepreneurship (CE) has long been recognised as a potentially viable means for promoting and sustaining corporate competitiveness (Covin & Miles 1999). Turbulence and rapidly changing knowledge - especially in the Information and Communications Technology sector (ICT) - has forced companies to become more entrepreneurial in order to capitalise on new business opportunities and to create value.

The research study was quantitative and data was collected through an online survey, which used closed-ended questionnaires. The questionnaires entail assessing the degree of CE in an organisation in relation to its performance. The analysis had 114 samples of companies in the ICT sector.

The study indicated that there is a strong positive association between level of CE and company performance. Companies that sustain their businesses and are able to prosper are likely to have a high level of CE.

The most important contribution of this study is the testing of CE theories in the South African context. The ICT managers can contribute to entrenching CE by being the champions in creating the environment that stimulates entrepreneurial behaviour.

## DECLARATION

I, Thokozani Nkosi, declare that this research report is my own work, except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in Entrepreneurship and New Venture Creation in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this, or any other, university.

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Thokozani Nkosi

Signed at Wits Business School, JHB

On the ..... day of ..... 2011

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**TO GOD BE THE GLORY!**

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# CHAPTER 1: INTRODUCTION

## 1.1 Purpose of the study

The purpose of this research study is to find the link between Corporate Entrepreneurship (CE) and organisational performance in Information and Communication Technology (ICT) companies operating in South Africa. Organisations in the ICT industry require sustainable business performance and this may be achievable through innovation, risk taking, pro-activeness and entrepreneurially orientated behaviour (Miller 1983; Covin and Miles 1995; Moreno and Casillas 2008; Wiklund 2009; Wakkee, Elfring, & Monaghan 2010).

The research investigates the relationship between corporate entrepreneurship (innovation, risk taking, pro-activeness, and entrepreneurial culture) and company performance. The company performance is evaluated based on financial and non-financial measures.

Finally, the results give a solid conclusion on how these two constructs (corporate entrepreneurship and company performance) relate to each other. The recommendations to senior executives, directors and management are depicted and they are aimed at giving direction and guidelines on which parts of corporate activities ICT companies need to focus on in order to become more entrepreneurially orientated. Entrepreneurial behaviours and attitudes are key determinants of the ability of large companies to survive and prosper in turbulent environments (Lumpkin and Dess 1996).



## **1.2 Problem statement**

Corporate Entrepreneurship (CE) has long been recognised as a potentially viable means for promoting and sustaining corporate competitiveness (Covin & Miles 1999). As ICT in South Africa is facing rapid technological changes, corporates need a strategy for competitive advantage and sustainability. Entrepreneurial behaviour by management and employees could lead to competitive advantage and sustainability (Zahra and Miles 1995; Landstrom, Crijns, Lavern, and Smallbone 2008).

However, the link between corporate entrepreneurship and organisational performance in the ICT environment is unclear from previous research. Thus, if entrepreneurship is to be used by ICT companies as a strategy for survival, it is critical that this link be empirically investigated in the context of this industry. Very little in-depth research regarding Corporate Entrepreneurship has been undertaken in the ICT context. Few studies have empirically researched this relationship in the South African context, especially in the ICT sector.

### **1.3 Significance of the study**

The study fills a gap as there have been very few studies of the relationship between corporate Entrepreneurship and organisation performance in Information and Communications Technology in the South African context.

The study will provide guidance to ICT companies operating in South Africa on which factors to focus on in order to entrench entrepreneurial behaviour within the organisation. The study results could be used by management to instil entrepreneurship in the corporate environment. Organisations could also use this empirical research study to promote an entrepreneurial culture to employees. This could impact organisational performance and business sustainability.

The Information and Communications Technology industry will be able to benchmark their degree of entrepreneurship against other market players through the results analysis of this research. Company managers could utilise this study to encourage their staff to be involved in calculated risk-taking by encouraging bold actions and trying out new ideas. In this way, managers will act as shock absorbers when subordinates' new ideas fail.

The study will add value to the South African Information and Communications Technology industry's operation and future growth by outlining the basic key requirements for companies to practise corporate entrepreneurship and improve their performance.

## 1.4 Delimitations of the study

The study focuses on the relationship between Corporate Entrepreneurship and company performance in the South African Information and Communications Technology industry (ICT). The company size, ranging from small to large as defined by DTI, is used and the focus is on ICT companies operating in South Africa.

The research study targets respondents at management level (such as directors, executives and senior managers) because they have information on the organisational performance trends, corporate entrepreneurship dimensions and performance measures. The study only requires one response per company.

The online survey intends to capture responses all over South Africa and this has been made easier by sending emails using the SurveyMonkey website. The study uses both listed and non-listed companies. The sampling frame only includes ICT companies on the ITWEB site and *bmicompanydata* database.

The research methodology used is:

- Quantitative;
- Cross-sectional study;
- Using Descriptive data and Multivariate inferential stats;
- Using Convenience sample – because of easy access to the ICT data.

## 1.5 Definition of terms

Certain terms will be used repeatedly in the study and thus need to be defined.

**Corporate Entrepreneurship (CE):** is the entrepreneurial behaviour inside established mid-sized and large organisations (Morris, Kuratko and Covin 2008). Zahra and Garvis (2000) define Corporate Entrepreneurship as the sum of a company's efforts aimed at innovation, pro-activeness and risk taking. Lumpkin and Dess (1996) have noted that CE can be used to enhance company performance by promoting product and process innovation. At any rate, corporate entrepreneurship allows an incumbent company to make full use of its resources to capture new opportunities (Yiu and Lau 2008).

**Intrapreneurship:** is a concept used to explain entrepreneurial activities in existing organisations (Agca, Topal, and Kaya 2009). They emphasise that, through intrapreneurship, companies also maintain and increase their sustainable competitive capabilities, which are fostered by different areas of organisational performance.

**Entrepreneurial orientation (EO):** Covin, Green and Slevin (2006) described entrepreneurial orientation as the presence of a firm's strategy - oriented towards innovation and growth through their capacity to assume relevant risks. Lumpkin and Dess (1996) define EO as the process, practices and decision-making activities that lead to new entry, innovation, risk taking, pro-activeness and entrepreneurial behaviour. EO leads to autonomy and competitive aggressiveness.

Terms such as Corporate Entrepreneurship or Intrapreneurship and firm-level entrepreneurial orientation have been used for describing the entrepreneurial activities of an organisation (Agca, Topal, and Kaya 2009).

Although these terms are being used interchangeably, this study is using the definition of CE based on the Zahra and Garvis explanation.

## **1.6 Assumptions**

The study assumes that respondents have an understanding of the construct Corporate Entrepreneurship. It assumes respondents have a meaningful understanding of the words entrepreneurial culture. The knowledge around entrepreneurial behaviour by the organisation is assumed to be understood by executives, directors and senior management.

The study also assumes that the potential respondents understand the company performance trends and performance measures such as Return On Assets, Return On Investments, Sales Growth, Market Value Growth, Return On Equity, Return On Sales and Operating Profit.

## **2 Chapter 2: Literature review**

### **2.1 Introduction**

In this study, the literature review outlines the structure and contents of the previous research studies around Corporate Entrepreneurship. This chapter gives a definition of corporate entrepreneurship based on the previous researchers. The characteristics and elements of CE will be explained broadly. The corporate entrepreneurship triggers and inhibitors are discussed as they can either enable, or discourage, CE in an organisation.

The existing literature on entrepreneurship has implicitly stated that Corporate Entrepreneurship and company performance are positively related to each other (Moreno and Casillas 2008). Currently, there has not been a consensus on the direct definition of corporate entrepreneurship. Different definitions of CE are extracted from the previous research documents. As the field of study grows, relevant topics consulted in this subject often fall under the following headings: Entrepreneurial orientation, Strategic entrepreneurship, corporate business venturing, Conceptualising CE, Contextualising CE, Entrepreneurial environments and sustaining entrepreneurship. In this study, corporate entrepreneurship and intrapreneurship are being used interchangeably.

In South Africa there has not been much research done to test empirically the relationship between corporate entrepreneurship and company performance in the Information and Communication Industry (ICT). The research uses the ICT industry to collect data information. In this section, the literature review is divided into sub-headings:

- Corporate entrepreneurship definition;

- Corporate entrepreneurship;
- Dimensions of Corporate Entrepreneurship;
- Why organisations need CE;
- Corporate Entrepreneurship barriers and triggers;
- Organisational Performance.

The key definition of Corporate Entrepreneurship includes innovation, venture creation, business venturing, risk taking, pro-activeness, opportunity recognition and market development (Miller, 1983; Morris *et al* 2008; Wang 2008).

## **2.2 Corporate Entrepreneurship Definition**

Corporate Entrepreneurship (CE) has long been recognised as a potentially viable means for promoting and sustaining corporate competitiveness (Covin and Miles, 1999). Corporate Entrepreneurship is a term used to describe entrepreneurial behaviour inside established mid-sized and large organisations (Morris *et al* 2008). CE refers to a scenario where the entire company, rather than individuals, acts entrepreneurially (Covin and Miles, 1999).

Zahra and Garvis (2000) define Corporate Entrepreneurship as the sum of a company's efforts aimed at innovation, pro-activeness and risk taking. These efforts offer an important means of revitalising and renewing established companies and improving their performance.

Agca *et al* (2009) classified intrapreneurship as two approaches: entrepreneurial orientation and corporate entrepreneurship. In the literature, researchers and academics have used different terms to define entrepreneurial

efforts in organisations and the differences in terminology in defining entrepreneurial activities still continue (Agca *et al* 2009).

Agca *et al* (2009); Dess *et al* (1999) and Lumpkin and Dess (1996) define CE as a process in which individuals in an existing organisation seek for the opportunities by, developing and venturing into new businesses.

Vozikis, Bruton, Prasad and Merikas (1999) defined corporate entrepreneurship as additional value creation. This additional value creation occurs within the established organisation. The value can be realised through adding new products and services. Moreover, this could be achieved by improving the current products and optimisation of processes.

Ireland *et al* (2009), state that Entrepreneurial Orientation is an organisational state or quality that is defined in terms of several behavioural dimensions. These dimensions are found on most levels of the structure of an organisation. Management should be in a state to drive and align the organisational behaviour to their strategic objectives. Miller (1983); Covin and Slevin (1991) define Entrepreneurial Orientation (EO) as the presence of organisational behaviour reflecting risk-taking, pro-activeness, and innovativeness. The intensity of EO in an organisation can be associated to the overall company performance over a certain period of time. The increase in performance does not often happen overnight, but rather over a long period.



## 2.3 Corporate Entrepreneurship

Corporate entrepreneurship has been studied by different authors before (Sebora, and Theerapatvong 2009; Ireland *et al* 2009; Zahra and Covin, 1995; Lumpkin and Dess 1996; Venter *et al* 2008). Most of these studies were attempting empirically to test the influence of corporate entrepreneurship on company performance and sustainability. Sebora and Theerapatvong (2009) have suggested that large companies tend to experience difficulties in employing corporate entrepreneurship in their management and employees; and this is often caused by a bureaucratic environment.

According to Sebora and Theerapatvong (2009), companies need continuous innovation, risk taking, and pro-activeness in order to stay competitive. The presence of Corporate Entrepreneurship among company managers leads to positive outcomes (Ireland *et al* 2009). Top managers need to have an entrepreneurial strategy and be able to cascade this through different levels within the company.

Corporate Entrepreneurship may be viewed broadly as consisting of two types of phenomena and processes: firstly, the birth of new business within existing organisations - whether through internal innovation or joint ventures/alliances; and, secondly, the transformation of organisations through strategic renewal, for example the creation of new wealth through a combination of resources (Dess, *et al* 1999).

Wiklund (1999) has studied the impact of corporate entrepreneurship on company performance and the findings showed a positive relationship. In Wiklund (1999), the survey results showed a strong relationship over time, which meant that the corporate entrepreneurship is effective within the organisation over a certain period. Zahra and Garvis (2000) found that

corporate entrepreneurship is positively associated with company performance. In the study by Zahra and Garvis (2000), it was found that one corporate entrepreneurship dimension - innovation - had a more positive relationship with company performance, especially in a company that is international. The company that innovates a lot tends to be more entrepreneurially- oriented than the one that does it seldom (Zahra and Garvis 2000). These companies have a culture that allows individuals within the organisation to act autonomously and to be able to suggest new ideas that can lead to efficiency of operations.

Through intrapreneurship, companies also maintain and increase their sustainable competitive capabilities, which are fostered by different areas of organisational performance (Agca *et al* 2009). Ireland *et al* (2009) believe that a corporate entrepreneurship strategy is manifested through the presence of three elements, which are: entrepreneurial strategic vision, a pro-entrepreneurship organisational architecture and entrepreneurial processes and behaviour.

Corporate entrepreneurship is an important predictor of company growth (Venter *et al* 2008). Lumpkin and Dess (1996) also found that EO is a key element for organisational success and improved performance. Many organisations attribute their success to an Entrepreneurial Orientation (Lumpkin *et al* 2009). They stated that organisations that rely on an EO to create new value and growth must make an effort to foster entrepreneurial behaviour. The entrepreneurial behaviour allows teams to operate outside an organisation's existing norms.

Entrepreneurial orientation, company rejuvenation and strategic renewal form part of corporate entrepreneurship (Miles *et al* 2009). Corporate entrepreneurship can be used to improve competitive advantage and to

reposition the company in the market (Lumpkin & Dess 1996; Ireland *et al* 2009).

Ireland *et al* (2009) stated that Entrepreneurial Orientation is an organisational state or quality that is defined in terms of several behavioural dimensions. Miller (1983), Covin and Slevin (1991) defined Entrepreneurial Orientation as the presence of organisational behaviour reflecting risk taking, pro-activeness and innovativeness. The company that embraces corporate entrepreneurship is said to be entrepreneurially- orientated. An EO keeps companies alert by exposing them to new technologies, making them aware of marketplace trends and helping them to evaluate new possibilities (Lumpkin *et al* 2009).

Top-level managers articulating an entrepreneurial strategic vision seek to direct attitude and outlook of employees more than specific behaviour (Ireland *et al* 2009). An entrepreneurial strategic vision is the mechanism by which top-level management paints the picture of the type of organisation they hope to lead in the future (Ireland *et al* 2009). Entrepreneurial strategic vision is a logical response to the presence of three often-related environmental conditions, which are: competitive intensity, technological change and evolving product-market domains (Ireland *et al* 2009).

In an environment of rapid change and shortened product and business lifecycle, the future profit streams from existing operations are uncertain and businesses need constantly to seek out new opportunities (Rauch *et al* 2009; Wang 2008). Therefore, businesses need to adopt and entrench Corporate Entrepreneurship.

## 2.4 Dimensions of Corporate Entrepreneurship

The Corporate Entrepreneurship dimensions include activities such as innovation, risk taking, pro-activeness, new product development, new business venturing, autonomy, competitive aggressiveness, self-renewal and strategic renewal (Miller 1983; Lumpkin and Dess 1996; Wiklund 1999; Covin and Miles 1999; Zahra and Garvis 2000; Ireland *et al* 2009; Agca *et al* 2009).

Miller (1983) suggested that a company's degree of entrepreneurship could be seen by the extent to which they innovate, take risks and act proactively. The company that is entrepreneurially-orientated is seen to be practising corporate entrepreneurship, which includes the aforementioned characteristics (Miller 1983). Self-renewal or strategic renewal is widely defined as the periodic transformation of organisations through the renewal of key ideas and resources on which organisations are built (Zahra and Covin 2005). Self-renewal activities include redefinition of a company's vision, mission, business concept; reorganisation of activities and the introduction of system-wide changes for innovation (Agca *et al* 2009). The articulation of the vision and strategic direction by management at all levels in the organisation are crucial, especially when the company implements some changes to their way of doing business.

Venturing activities emphasise the creation of new businesses by entering new foreign markets and expanding in existing ones (Zahra and Garvis 2000). According to Zahra and Garvis (2000) venturing can increase a company's knowledge base, which increases the innovativeness of a company's products and strategy. This study only focuses on four dimensions of corporate entrepreneurship, which are: innovation, risk taking, pro-activeness, and entrepreneurial culture.

According to Covin and Miles (1999), innovation is at the centre of a network that encompasses the constructs of corporate entrepreneurship. Therefore the label entrepreneurial should be applied to companies that are innovative. Having said that, they also believe that some element must exist in conjunction with innovation in order for a company to claim an entrepreneurial orientation; and such elements are sustainable high performance, or improving competitive position. Lumpkin *et al* (2009) have studied autonomy as the key characteristic of Entrepreneurial Orientation and they concluded that this element can help the organisation to foster corporate entrepreneurship. These authors have considered autonomy as a driver that encourages innovation, promotes the launching of entrepreneurial ventures and increases the competitiveness and effectiveness of the company.

### **2.4.1 Risk taking**

Risk taking involves taking bold actions by venturing into the unknown, borrowing heavily and/or committing significant resources to ventures in uncertain environments (Wang 2008; Lumpkin *et al* 2009; Rauch *et al* 2009). Zahra and Garvis (2000) define risk taking as a company's disposition to support innovative projects, even when the payoff from these activities is uncertain. Subsequently these activities can enhance the company's ability to recognise and exploit market opportunities ahead of its competitors.

Autonomy within the entrepreneurial organisation allows individuals to act freely and be able to explore new ideas (Lumpkin *et al* 2009) that can create competitive advantage. This type of behaviour by individuals within the firm brings about the possibility of acting on potential ideas for the future growth of the firm. The behaviour of managers by insisting on following the tried-and-tested paths or tending to support only projects with expected returns that are certain, have a negative relation to performance as compared to taking bold

actions by entering the unknown business environment (Lumpkin and Dess 1996). Thus, the support by senior management within the organisation allows for individuals to take calculated risks.

Entrepreneurial firms are risk-tolerant and this characteristic often stimulates them to eliminate the kind of traditional authoritarian structures that inhibit collaborative learning (Wang 2008). These firms allow individuals and teams to act independently and exercise their creativity by taking risks in coming up with new ideas (Lumpkin and Dess 1996). According to Miller (1983) and Wang (2008) risk-tolerant and innovative firms' managers encourage new ways of thinking - tolerating mistakes and rewarding individuals with new ideas that contribute to innovation and business improvement. The culture of allowing individuals to making mistakes when trying new ways of improving business performance promotes a sense of open-mindedness (Moreno and Casillas 2008).

The above discussion leads to the following hypothesis:

**H1a: Risk taking is positively related to company performance**

## 2.4.2 Innovation

Innovativeness reflects a firm's tendency to engage in, and support, new ideas, uniqueness, experimentation and creative processes that may result in new products, services, or technological processes (Clark 2010; Lumpkin and Dess 1996). Innovative firms have capabilities to monitor the market changes and respond quickly, thus capitalising on emerging opportunities (Wiklund, 1999). According to Huse *et al* (2005), firms operating in turbulent environments are often characterised by rapid and frequent new product creation and high levels of research and development. Such environments appear to play a crucial role in influencing corporate entrepreneurship in an organisation. Environmental changes stimulate firms to innovate by introducing new technologies, new products, service and processes to take advantage of opportunities arising from the dynamic environment (Huse *et al* 2005). Environmental change can cause the firm to search for new means to remain competitive, which foster process innovation activities. Innovation keeps firms ahead of their competitors, thereby gaining a competitive advantage that leads to improved financial results (Wiklund, 1999).

Zahra and Garvis (2000) define innovation as the firm's ability to create new products and successfully introduce them to the market. Innovation also revises the firm's knowledge base, allowing it to develop new competitive approaches, which can be exploited in new foreign markets to achieve growth and profitability (Zahra and Garvis, 2000). Clark (2010) found that companies that are clearly innovators based their focus on new innovations, the number of new innovations and levels of investment in new innovations.

Venter *et al* (2008) state that: "*At the centre of entrepreneurship is innovativeness*". An organisation that innovates is classified as being

entrepreneurial. Entrepreneurial activities influence a company's commitment to innovation (Miller 1983; Lumpkin and Dess 1996) by offering innovative products and processes. According to Huse *et al* (2005), innovation has become a source of international competitive advantage.

Zahra and Garvis (2000) stated that innovation can also lead to the development of key capabilities that can improve a firm's performance. They also put emphasis on the fact that innovation generates products, goods, processes, services and systems that can be used to meet customer needs and build a strong market position. Thus innovation can improve the firm's profitability and fuel its growth. Better profitability and sustainability are also realised from continuous innovation by the entrepreneurial organisation. Huse *et al* (2005) stated that innovation can be distinguished in three ways: the development of new products and services, the adoption of new technologies with an intention to improve production methods, the establishment of novel organisational structures and administrative systems.

Innovation involves reinventing products in a profitable manner (Venter *et al* 2008). The level of entrepreneurial behaviour by the organisation allows the company constantly to evaluate the potential possible business opportunities that will bring growth and sustainable business (Lumpkin and Dess 1996).

Innovation can be forced by industrial factors (fast technology changes in the industry, customer demands), environmental dynamism (new processes, technology) and international activities such as international diversification (Huse *et al* 2005). According to Lumpkin and Dess (1996), a level of expenditure and a number of resources dedicated to research and development represent a firm's involvement in innovation activities. Innovation stimulates firms to behave entrepreneurially. According to Venter *et al* (2008, most technological firms use innovation to achieve objectives such as:



- Maximum profits;
- Gaining market share;
- Creating niche markets;
- Adding value for stakeholders.

The above discussion leads to the following hypothesis:

**H1b: Innovation is positively related to company performance**

### **2.4.3 Pro-activeness**

Pro-activeness shows a firm's aggressive pursuit of market opportunities and a strong emphasis on wanting to be among the very first to implement innovation in its industry (Rauch *et al* 2009). Pro-activeness is an opportunity-seeking, forward-looking perspective characterised by the introduction of new products and services ahead of the competitors and acting in anticipation of future demand (Lumpkin and Dess 1996; Rauch *et al* 2009). Miller (1983) defines pro-activeness as an indication of a company's determination to pursue promising opportunities, rather than merely responding to competitors' moves. According to Lumpkin and Dess (1996), pro-activeness refers to how a firm relates to market opportunities in the process of new entry. They added that pro-activeness involves pursuing opportunities and the will to respond aggressively to competitors.

Wiklund (1999) stated that pro-activeness gives firms the ability to present new products or services to the market ahead of competitors, which also gives them a competitive advantage. Pro-active firms have a greater tendency to lead than to follow in the development of new procedures and technologies and the introduction of new products and services (Lumpkin and Dess 1996). An

entrepreneurial firm instils flexibility and grants individuals and teams the freedom to exercise their creativity to champion new ideas (Wang 2008). These activities by the firm's team enable the firm to be more pro-active in introducing new products. Pro-activeness suggests an emphasis on initiating activities. It is closely related to innovativeness. For example, new product innovation is part of innovativeness but also forms part of pro-activeness by the firm (Lumpkin and Dess 1996).

According to Lumpkin and Dess (1996), the importance of being a first-mover or pioneer has been frequently emphasised in the entrepreneurial process since Schumpeter. Proactive firms are likely to be first-movers when they face threats and/or opportunities in their environment (Agca *et al* 2009). In the business world, proactive firms tend to be leaders, rather than followers of other corporations (Lumpkin and Dess, 1996).

According to Zahra and Garvis (2000), proactive corporate entrepreneurship, such as first entry, can improve a firm's performance. The first entrants tend to exploit opportunities before their rivals and enjoy significant strategic advantage in the markets (Zahra and Garvis, 2000). Consequently, pro-activeness can be conducive to a company's performance improvement.

The above discussion leads to the following hypothesis:

**H1c: Pro-activeness is positively related to company performance**

#### **2.4.4 Entrepreneurial culture**

Entrepreneurial culture is a pattern of basic assumptions invented and designed to assist people to learn to cope with the problems of external adaptation and internal integration (Morris *et al* 2008; Covin and Miles 1999).

Rauch *et al* (2009) suggested that the influence of corporate entrepreneurship on business performance may vary as a function of cultural norms. Venter *et al* (2008) differentiate between entrepreneurial culture and corporate culture. In their differentiation they define corporate entrepreneurship culture as the polar opposite of a conservative corporate culture. The corporate culture is one which celebrates caution and conformity, convention, protocol, rules and procedures (Venter *et al* 2008). "*The culture that allows individuals to bring new ideas and tolerate risk is a key element of sustainable business performance*" (Wang 2008). Entrepreneurial culture stimulates innovation, flexibility and performance (Lumpkin and Dess 1996). Entrepreneurship should be encouraged in an organisation by creating an appropriate entrepreneurial culture and fostering an entrepreneurial climate (Venter *et al* 2008).

Entrepreneurially- oriented companies establish clear and meaningful core values and ensure they are shared within the organisation (Morris *et al* 2008). Entrepreneurial organisations are guided by their vision. Firms successful at a sustained form of corporate entrepreneurship tend to have cultures and systems supportive of innovation (Covin and Miles 1999).

An entrepreneurial organisation empowers its people and gives them freedom to decide and act by devolving decision-making authority (Morris *et al* 2008; Wang 2008). They found that culture is an important controlling instrument for corporate entrepreneurship, because it provides a space for taking risks and a certain degree of immunity from failure.

A favourable company culture encourages employees to try out new ideas, even if they fail. The belief is that mistakes can be learned from. . Entrepreneurship culture encourages learning through information sharing, commitment and accountability (Morris *et al* 2008). As innovation is a key element of corporate entrepreneurship, it can be influenced by cultural factors and/or differences in the market structures of different countries (Huse *et al* (2005).

Zahra, et al (1999) believed that the culture that reinforces communication and sharing of knowledge within the organisation is a crucial element of success in encouraging the implementing of new ideas. Sub-cultures exist in an organisation, with each culture having its dominant values and assumptions (Zahra *et al* 1999). They concluded that understanding the key values of these cultures and recognising the key powerful elements within them can lead to successful innovations. Entrepreneurial firms are more prone to having a market-driven culture by constantly updating, improving and changing business processes, products and services that eventually create more value for customers (Agca *et al* 2009).

As mentioned earlier, core values are critical for the entrepreneurial culture to be successful. A meaningful level of entrepreneurship cannot be sustained over time unless entrepreneurship is reflected in the core values of the firm (Morris *et al* 2008; Zahra *et al* 1999). Culture has many elements, but there are some aspects that are more conducive to entrepreneurial culture than others. The following are the elements that form part of the entrepreneurial culture (Morris *et al* 2008):

- Focus on people and empowerment;

- Value creation through innovation and change;
- Attention to the basics;
- Hands-on management;
- Doing the right thing;
- Freedom to grow and fail;
- Commitment and personal responsibility;
- Emphasis on the future and a sense of urgency.

According to Morris *et al* (2008) these core values are embedded in the life-blood of the entrepreneurial organisation. They found that employees in the entrepreneurial firm strive for major achievement and always want their organisation to prosper. Based on the above discussion, the following hypothesis is formed:

**H1d: Entrepreneurial Culture is positively related to company performance.**

## **2.5 Why organisations need Corporate Entrepreneurship**

Some of the challenges facing South Africa are to develop sustainable economic growth, to improve its international competitiveness and to build the country's capacity for innovation, especially in the Information and Communication Technology sector because there is fast technological development in this sector. Venter *et al* (2008) mentioned that, throughout the world, environmental change is accelerating at national, industrial and organisational levels. So this means that, in order for South Africa to sustain economic growth, corporate entrepreneurship at organisational and/or industrial level should be encouraged and entrenched.

Emerging global markets and rapid technological developments make strong demands on the ability of companies to develop and utilise their resources (Huse *et al* 2005). By being involved in corporate entrepreneurship, companies can absorb these pressures and prosper. It has been said that corporate entrepreneurship has a positive impact on a company's performance (Covin and Miles 1995; Moreno and Casillas 2008; Wiklund 2009; Wakkee *et al* 2010). This view implies that organisations that practise entrepreneurship are able to increase their results, which can then lead to an increase in the South African Gross Domestic Production (GDP). Increased performance at the industrial level positions the country more competitively in relation to other countries.

Innovation is imperative as part of corporate entrepreneurship and is pertinent in South Africa, especially in the e-business arena. E-business is seen as information exchanges, commercial or administrative transactions between individuals, businesses and government that take place via Information and Communication Technology (ICT) based computer-mediated networks. Ireland, *et al* (2009), state that corporate entrepreneurship can be used to improve competitive advantage and to reposition the company in the market. For companies to realise more output and growth, they need to instil entrepreneurship in their business environment. Entrepreneurial activities help companies to develop new businesses that create revenue streams and these activities also enhance the company's success by promoting product and process innovation (Zahra *et al* 1999). According to Miller (1983), these Corporate Entrepreneurship activities embody risk taking, pro-activeness and radical product innovations.

Previous studies have theorised that the incidence of entrepreneurial behaviours in a company will be positively associated with organisational profitability and growth (Miller 1983; Zahra and Covin 1995; Lumpkin and Dess 1996; Wiklund, 1999; Venter *et al* 2008; Ireland *et al* 2009; Kreiser and Davis 2010). These authors have proven that the high level of entrepreneurial

behaviour within an organisation leads to high levels of performance and profitability. Most of these studies had emphasised key elements which needed to be entrenched in entrepreneurial companies in order for them to be classified as entrepreneurial.

The study by Agca *et al* (2009) has confirmed that intrapreneurship activities have a positive and significant impact on profitability in terms of innovation and risk taking. According to Wang (2008), entrepreneurial behaviour is a key ingredient for a company's success. Entrepreneurial behaviour tends to be associated with higher growth and this behaviour is a result of innovation, risk taking and pro-activeness (Moreno and Casillas 2008).

Covin and Miles (1999) put corporate entrepreneurship as the spark and catalyst that is intended to place firms on the path to competitive superiority and to keep them in competitive advantageous positions. Through corporate entrepreneurship, firms are able to rejuvenate, redefine and reposition themselves (Miller 1983; Covin & Miles 1999; Miles *et al* 2009).

Through intrapreneurship, firms also maintain and increase their sustainable competitive capabilities, which are fostered by different areas of organisational performance (Agca *et al* 2009). The level of top management involvement in ensuring information flow and aligning different divisions in strategic directions allows them to foster intrapreneurship with great understanding. Entrepreneurial firms that are first-movers incur the greatest business and financial risk and spend the most on innovative activities, but are always rewarded in the marketplace (Dess *et al* 1999). On the other hand, some firms may enjoy long-term benefits from imitation strategy rather than from a high level of innovativeness (Dess *et al* 1999).

Through intrapreneurship, companies are able re-engineer internal processes and procedures to secure efficiencies. In this way, they become more competitive (Venter *et al* 2008). Organisations that take entrepreneurship seriously are seen to perform better and able to sustain their businesses. In the study by Barrett & Weinstein (1998), the Cronbach's Alpha of 0.84 was found when evaluating the level of Corporate Entrepreneurship (CE) and company performance. Based on their findings, there is a strong relationship between CE and company performance. In contrast to that, Lumpkin and Dess (1996) argue that examining Entrepreneurial Orientation does not give a true picture of the relationship between CE and company performance if the external environmental factors are not investigated.

Lumpkin and Dess (1996) also found a company could more easily adapt to fast-changing business environments if it embraced Corporate Entrepreneurship or entrepreneurial behaviour. Wang (2008) stated that an entrepreneurial company is one that engages in product-market innovation, undertakes some risky ventures and is first to come up with proactive innovation, beating the competitors (pro-active). Such characteristics indicate that the company has a certain degree of corporate entrepreneurship. Wang (2008) added that these characteristics are associated with improved firm performance in today's business environment, where product and business model life-cycles are shortened. The future profits stream from existing operations, but are uncertain. Businesses need constantly to seek out new opportunities that will give them a competitive advantage and lead to sustainability. Based on the results findings of the study by Agca *et al* (2009), it is suggested that intrapreneurship activities in existing organisations generally improve firm performance in financial and non-financial dimensions. Wiklund (1999) found that firms that practise Corporate Entrepreneurship perform better. These firms position themselves in the market and are ready to act in a turbulent environment. According to the conclusion by Lumpkin *et al* (2009), these companies emphasise a conceptualisation of Corporate Entrepreneurship with clearly defined sub- dimensions. .



The above discussion leads to the formulation of the following hypothesis:

**H1: Corporate Entrepreneurship dimensions are positively related to company performance in the ICT industry.**

## **2.6 Corporate Entrepreneurship Barriers and Triggers**

Intensifying global competition, corporate downsizing rapid technological progress and many other factors have heightened the need for organisations to become more entrepreneurial in order to survive and prosper (Dess *et al* 1999; Huse *et al* 2005; Venter *et al* 2008). Companies operating in this type of environment have to be more innovative so that they can absorb these pressures.

The environment in which the organisations operate can be a source of corporate entrepreneurship (Huse *et al* 2005). Because the environment is complex and volatile, long-term competitiveness requires organisations to be open to signals regarding current and future conditions of the environment and to apply this knowledge to change their own behaviour and position themselves in the market. Previous studies have found that environmental dynamism encourages entrepreneurial behaviour and innovation (Huse *et al* 2005; Miller 1983). Environmental dynamism stimulates firms to take advantage of new opportunities created by change. Corporate entrepreneurship can be triggered by strong entrepreneurial characteristics, such as leadership, good planning systems, a customer-driven orientation, efficient operation and hands-on management (Morris and Jones, 1999).

Corporate entrepreneurship is the main driver of innovation, risk taking and pro-activeness and can be triggered by different activities and actions within, and outside, the organisation (Miller 1983; Dess *et al.* 1999). Tang, Tang, Marino, Zhang and Li (2009) have argued that ever increasing levels of entrepreneurial behaviour (innovation, risk taking, and pro-activeness) can lead to worsening company performance. Based on their research findings, the relationship between EO and company performance is curvilinear. They found that, over a certain period, a continuous increase in the level of corporate entrepreneurship negatively impacted on company performance.

Coaching and entrepreneurial self efficacy are some of the triggers of intrapreneurship (Wakkee *et al* 2010). They said that coaching by managers might be important in improving employees' entrepreneurial behaviour (Wakkee *et al* 2010) because, through coaching, managers provide their employees with access to resources and expertise. Stimulating intrapreneurship is a difficult task and it is not something that can be achieved overnight. Rather, becoming more entrepreneurial should be considered to be a learning process (Wakkee *et al* 2010).

Entrepreneurial self-efficacy is an important variable, which explains both the strength of entrepreneurial intentions and the likelihood of translating these intentions into entrepreneurial activities (Wakkee *et al* 2010). Both management coaching and entrepreneurial self-efficacy are found to be positively related to entrepreneurial behaviour (Wakkee *et al* 2010). It was concluded that organisational and individual variables are crucial predictors of entrepreneurial behaviour. These variables tend to trigger entrepreneurial behaviour in an organisation.

Dess *et al* (1999) suggested that successful corporate entrepreneurship may hinge on the firm's ability to combine structural approaches that focus on

efficiencies and processes and fit with strategic approaches, quality and effectiveness. They mentioned that organisations that put emphasis on reducing the internal boundaries play a critical role in successful corporate entrepreneurship. A barrier-free organisation has been touted as critical in the building of an entrepreneurial environment. Fewer layers of management, interdisciplinary work groups, empowerment of first line managers, supervisors, open communication vertically and laterally and accountability are typical features of an organisation that embraces corporate entrepreneurship (Lumpkin and Dess 1996).

Larger companies should have an edge in innovation and fostering entrepreneurial behaviour, because they can afford engineers, staff, modern facilities and the latest technology equipment (Barrett and Weinstein 1998; Morris *et al* 2008). So access to financial resources offers firms the flexibility to invest in research and development and to become more innovative (Clark 2010). External supports from other institutions help smaller firms with scarce resources to invest in innovation (Clark 2010). So, according to Barrett and Weinstein (1998), larger firms are more entrepreneurial than smaller firms due to access to resources. The availability of such resources tends to trigger corporate entrepreneurship.

The traditional hierarchy-driven organisational models make it difficult to foster corporate entrepreneurship in an organisation (Dess *et al* 1999). They emphasise that such models tend to create clearly-defined boundaries that limit flexibility and choke communication. Moreover, these organisations often suffer from political issues arising from different levels in the structure. Such politics make it difficult for information to flow freely within an organisation.

According to Sehora and Theerapatvong (2009); Morris *et al* (2008), bureaucratic structures constrain entrepreneurial behaviour in an organisation.

Dess *et al* (1999); Morris *et al* (2008) state that hierarchical levels in traditional structures which assign responsibility for entrepreneurial activities to managers, without delegating adequate amounts of authority, also represent constraints on entrepreneurship behaviour. Moreover, Clark (2010) recommends that organisations need to review existing policies and programmes to support and facilitate entrepreneurial and innovative growth.

A culture that is averse to risk and/or process-driven is almost, by definition, discouraging employees from acting in an entrepreneurial manner (Morris *et al* 2008). Due to the presence of this type of culture, a firm will tend to possess a lower level of intrapreneurship. Budgeting systems, with no room for failure, impose a threat on risk taking because there are no funds for experimental projects (Morris *et al* 2008). In addition to budgeting systems, other obstacles such as structure, strategic direction, policies and procedures, people and culture tend to become barriers when attempting to introduce intrapreneurship into a firm. Culture has been noted as a key element in fostering entrepreneurial activities in an organisation and companies that practise entrepreneurship are more successful than the ones that don't (Lumpkin and Dess 1996; Morris *et al* 2008; Venter *et al* 2008). The lack of involvement by senior managers in driving and articulating the vision, mission and aligning these with strategic direction also put constraints on intrapreneurship in an organisation (Morris *et al* 2008; Venter *et al* 2008). In the study of entrepreneurship in established organisations (Morris and Jones, 1999), obstacles such as policies, procedures, personnel restrictions, red-tape, limitations to amount of rewards and limited managerial autonomy were identified as leading obstacles that impede entrepreneurial behaviour.

## 2.7 Organisational Performance

Organisational performance in a fast and changing environment requires an entrepreneurial approach. Huse *et al* (2005) state that emerging global markets and rapid technological developments make strong demands on the ability of companies to develop and utilise their resources in order to meet their customer demands. These firms are flexible to environmental dynamics, which allows them to identify new opportunities caused by disequilibrium (Huse *et al* 2005).

In addition to corporate entrepreneurship, the age of firms influences their growth and profitability. Thus, the company performance increased relative to company age. Companies that have been in the market for a longer tenure tend to have more experience and knowledge about the industry compared to new entrants. Such advantages position them at a level where they can innovate better. In contrast to that, smaller companies are more flexible and can easily adapt to market changes, which then gives them a better advantage when coping with environmental changes (Steffens *et al* 2009).

Sebora and Theerapatvong (2010) say there is a possibility that firm size might affect the relationship between organisational performance and entrepreneurial attitude. Large organisations use rigid rules and procedures to administer their operations, which in turn could impede entrepreneurial behaviour by employees and which could lead to less innovation (Morris *et al* 2008).

Corporate entrepreneurship dimensions, such as innovation, risk taking and pro-activeness, have a positive influence on company performance (Miller 1983; Lumpkin and Dess 1996). The presence of these entrepreneurial dimensions means the organisation is acting entrepreneurially. Higher growth tends to be associated with firms that support entrepreneurial behaviour (Moreno and

Casillas 2008). Thus, growth tends to be considered a logical consequence of the innovative, pro-active and risk taking behaviour of the firm. Although Zahra and Covin (1995); and Lumpkin and Dess (1996) have found a positive relationship between EO and performance, other authors (Tang *et al* 2009) have argued that this relationship tends to be curvilinear over a certain period if the organisation continues to increase its level of entrepreneurship.

There are numerous non-financial rewards for innovation, such as increased employee motivation, staff retention and creating a positive organisational culture. Adaptive firms typically have higher overheads, measured as a percentage of sales, than repetitive firms. Company growth and profitability are relevant measures of firm performance in the domain of corporate entrepreneurship (Steffens *et al* 2009). On other hand, they argued that company growth does not always lead to profitability as the relationship between these two variables can be negative or neutral. The company can show an increase in growth, whilst profits are reduced. This could be as a result of various causes including company expansion, purchase of new assets, and increase in sales or operations costs. In contrast to Steffens *et al* (2009), other authors (Rutherford *et al* 2008) used multiple measures of performance, which included financial and non-financial measures such as Return On Assets (ROA), Profit, Sales and Return On Equity (ROE). It typically takes eight years for a new venture to reach profitability and about ten years before its Return On Investment (ROI) equals that of mainstream business activities (Rutherford *et al* 2008). Ruach *et al* (2009) considered and recommended financial measures such as Sales growth and Return On Investments (ROI) to assess business performance. Entrepreneurship research and practice place emphasis on company growth as a measure of entrepreneurial success (Steffens *et al* 2009).

Steffens *et al* (2009) argue that changes in assets are not recommended as a measure of growth as this measure is more relevant for companies which are capital-intensive. It is not an appropriate measure for a service sector, which is

less capital-intensive than the manufacturing sector. In this study, both service and manufacturing companies are part of the sampling frame. Thus, the other measures of performance were added to evaluate the organisational performance.

Organisational Performance was measured in terms of growth. Thus, in this study Sales performance, Return On Assets (ROA), employment growth, Return on Sales, Return On Equity (ROE), Return On Investment (ROI), and Operating profit were used to measure organisational performance. The study used both financial and non-financial measures to capture the essence of entrepreneurial business performance. The respondents were asked to consider the performance of the organisation over a period of five years.

According to Winklund (1999), it is possible to increase sales without acquiring additional resources, by simply outsourcing the increased business volume. In this case, only sales growth will increase, thus sales growth has a high generality. Steffens *et al* (2009) have argued that sales growth does not always lead to profitability at all times, due to the ever-changing relationship between these two variables.

Sales and employees have a different flexibility, with sales changing more rapidly with demand than does the number of employees. The company can either outsource/sub-contract other divisions which could result in fewer employees, or they could hire more employees. Both of these actions by the firm could mean positive or negative performance. Thus, changes in the number of employees are not directly related to company performance.

## 2.8 Conclusion of Literature Review

Based on previous studies, the overall evaluation of corporate entrepreneurship is that the firms involved in entrepreneurial endeavours see more increased growth and profitability levels than firms that do not attempt to engage in intrapreneurship activities (Agca *et al* 2009). Thus it can be said that the intensity of intrapreneurship in a firm is positively related to the level of organisational growth and profitability. Wiklund (1999) found that there is a positive relationship between Entrepreneurial Orientation and performance. A number of other studies have found that there is a positive relationship between a firm's Corporate Entrepreneurship activities and their long-term organisational performance (Zahra and Covin 1995; Covin and Miles 1999; Wiklund 1999).

Entrepreneurial firms must foster organisational learning in order to maximise the effect of Entrepreneurial Orientation on company performance (Wang 2008). Organisational learning has been explained as knowledge acquisition in the former view and value acquisition in the latter. According to Sehora and Theerapatvong (2009), an entrepreneurial mindset is encouraged by and related to management support. Management support indicates a willingness to support entrepreneurial behaviour within the organisation. Corporate Entrepreneurship is important for organisational survival, growth, profitability and renewal (Sehora and Theerapatvong 2009; Covin and Miles 1999; Lumpkin and Dess 1996).

The hypotheses of the study are as follows:

**H1:** Corporate Entrepreneurship dimensions (innovation, risk taking, pro-activeness, and entrepreneurial culture) are positively related to company performance.

**H1a:** Innovation is positively related to company performance.

**H1b:** Pro-activeness is positively related to company performance.



**H1c:** Risk taking is positively related to company performance

**H1d:** Entrepreneurial culture is positively related to company performance

### **CHAPTER 3: Research methodology**

This chapter describes the research methodology utilised in this study. The research methodology specifies how the study was conducted to reach the stated objective. The main objective of this study is to evaluate the impact of corporate entrepreneurship on company performance in ICT companies in South Africa. The study assesses the level of corporate entrepreneurship in relation to company performance in the Information and Communication Technology (ICT) sector.

The methodology explains how the relationship between various constructs - such as innovation, risk taking, pro-activeness, entrepreneurial culture and overall company performance (financial and non-financial measures) - was evaluated. The research methodology describes the method used to address the following hypothesis:

**H1:** Corporate Entrepreneurship dimensions (innovation, risk taking, pro-activeness, and entrepreneurial culture) are positively related to company performance.

**H1a:** Innovation is positively related to company performance.

**H1b:** Pro-activeness is positively related to company performance.

**H1c:** Risk taking is positively related to company performance.

**H1d:** Entrepreneurial culture is positively related to company performance

### **3.1 Research methodology/Paradigm**

This is a quantitative research study, which deals with the statistical analysis for the useable sets of completed questionnaires from respondents. A quantitative approach is one in which the investigator primarily uses post-positivist claims for developing knowledge. It employs strategies of inquiry - such as experiments and surveys - and collects data on predetermined instruments that yield statistical data (Creswell 2003). The use of online questionnaires was deemed appropriate for this research study because that was the only feasible way of eliciting responses from respondents throughout the country.

The research study used a database which has listed and non-listed ICT companies in South Africa. This study is a descriptive study of corporate entrepreneurship in South Africa. A cross-sectional survey was used to determine how corporate entrepreneurship influences company performance in the Information and Communication Technology industry. The research structure includes the target population, sampling method, instruments used for data collection and procedures for data collection.

### **3.2 Research Design**

The study adopted on-line survey-type questionnaires. These were self-administered questionnaires and respondents had no time pressures to complete them by a deadline. The reasoning behind using on-line

questionnaires was to reach as many respondents as possible in all regions in South Africa.

### **3.3 Population and sample**

#### **3.3.1 Population**

The population of this research study consisted of all Information and Communication Technology (ICT) companies operating in South Africa. Each company was represented by one individual employee in this research study. The target population only included permanent employees. The targeted population included managers/leaders/supervisors/executives in each company. Both listed and non-listed companies were used..

The population from Information Technology and Telecommunications companies ranges from web designers, cellular phone assembling, computer networking, data services, cabling, to cellular network providers. The target population was deemed relevant for this study, especially when looking at the turbulence and dynamism experienced by the companies in this industry recently.

#### **3.3.2 Sample and sampling method**

The non-probability sampling method was used in this study. Non-probability sampling is appropriate when there are time constraints for the research study (Cooper & Schindler, 2008). The convenience samples type of non-probability

samples were used in this study. The sampling method was targeted at Information and Communication Technology companies operating in South Africa. Company sizes ranged from small to large organisations and this was based on their number of employees, as defined by the Department of Trade and Industry (DTI).

The sampling frame consisted of one permanent, management-level employee per company. The sample size of  $n=114$  companies was deemed to be appropriate for this research study. The research had only 114 valid usable responses, one email address bounced. 153 did not respond. This puts the response rate at 42.7%. Telephone calls were made to numerous respondents to encourage them to complete the online surveys. Refer to **Appendix B** for a response snapshot.

Company data was obtained from the ITWEB website and *bmicompanydata*. Responses from 114 companies were received, thus ensuring that the data analysis could be generalised across the ICT industry. Refer to **Appendix C** for names of companies that participated. The company size used included all sizes of firms ranging from micro to large, as described by the South African Department of Trade and Industry.

### **3.4 The research instrument**

The empirical investigation took place through a cross-sectional survey. The research employed quantitative, closed-ended questionnaires. Closed-ended questionnaires ask respondents to select a response/s from a series of pre-designated choices (Kalaf *et al* 2008). These were self-administered questionnaires sent by email through the surveymonkey website.

The research questions were structured to enquire about the presence of entrepreneurial behaviour among Information and Communications Technology (ICT) companies in South Africa. The questionnaires used the 5-point Likert scale, which has been used in previous studies (Monsen and Boss 2009; Wakkee *et al* 2010). These questionnaires used forced-answer types of questions. The covering letter and actual instrument are as depicted in **Appendix A**.

A pilot test was conducted to detect weakness in design and instrumentation. The pilot test was sent to Vodacom management and errors in the survey, such as *“allow one answer per column”*, were corrected. Prior to that, the questionnaires had been verified by Wits Business School’s research methodology lecturer and the research supervisor.

The advantages of using self-administered surveys are;

- Allows contact with inaccessible participants;
- Incentives may be used to increase response rate;
- Allows participants time to think about questions;
- Perceived as more anonymous;
- Participants who cannot be reached by phone are accessible
- Expanded geographical area without an increase in cost.

The shortcomings of this type of communication method are incorrect e-mail addresses and lack of interview intervention available for explanation. Moreover, low response rates may be experienced when using this method.

### **3.5 Procedure for data collection**

The ITWEB website and *bmicompanydata* databases were used to obtain contacts in the Information and Communications Technology industry in South Africa.

The questionnaires were sent through weblink ([www.surveymonkey.co.za](http://www.surveymonkey.co.za)) to ICT managers, directors, CEOs and supervisors. The collection of data was obtained by the 5-point Likert scale and closed-ended questions. The scale represented each of the five constructs in the model: innovation, risk taking, pro-activeness, entrepreneurial culture and company performance. Company demographic measures were used as the control variables.

The five point Likert scale placing 5 as the highest score and 1 as the lowest score, was utilised. The frequencies of positive responses to each item, as well as the mean and standard deviation of scale totals, were calculated. The research only used primary data. The primary data source was extracted from respondents answering the on-line survey sent through the surveymonkey website. Weekly email reminders were sent to those who had not responded after a certain time. Numerous follow-up phone calls were made to encourage people to respond to the on-line survey.

### **3.6 Data analysis and interpretation**

The research used statistical analysis (Barrett & Weinstein, 1998) to evaluate the relationship between the dependent variable of company performance and several independent variables (innovation, risk taking, pro-activeness and entrepreneurial culture).

During the data analysis stage, data collected is converted into a format that can be used to address the research problem. Data preparation is the process of extracting data from questionnaires so that these can be read and manipulated by computer software. During this process, data is validated, edited and then cleaned. Since nominal, ordinal and interval data were used in this study, various descriptive and inferential statistical analyses could be performed.

Descriptive statistics are used to describe data and inferential statistics are used to determine significant levels of relationships between independent and dependent variables. The following table is a summary of the permissible descriptive and inferential relevant statistical test used in the study of nominal, ordinal and interval data.

**Table A**

<b>Measurement Scale</b>	<b>Statistics</b>
Nominal Scales	Frequency distribution, Mode
Ordinal Scales	Frequency distribution, Median, Mean, Standard Deviation, Coefficient of Variation, Correlation analysis, One-way ANOVA, Chi-Square test
Interval Scales	Frequency distribution, Median, Mean, Standard Deviation, Skewness, Coefficient of Variation, Correlation Analysis, Confirmatory Factor Analysis, Multiple regression

Source: Saunders *et al* 1997: Pg 310

### **3.6.1 Descriptive Statistics**

Descriptive statistics describe the characteristics of the respondents, as indicated in Table A. Descriptive statistics use frequencies, means, modes, medians, standard deviation and coefficients of variation to summarise the characteristics of large sets of data. The following statistics were used:

- **Frequencies:** frequencies refer to the actual number or percentage of responses to a certain question. These may be represented by way of bar charts or tables.
- **Mean:** is a sum of the values for all the observations of a variable divided by the number of observations. It measures the central, or average, response of respondents.
- **Mode:** The observation that occurs most frequently
- **Median:** The middle value when the data is arranged from smallest to largest.
- **Coefficient of Variation:** provides a relative measure of the dispersion in the data relative to the mean. Dispersion refers to the degree of variation in the data (numerical spread of the data).

In this research study, the frequency distribution was calculated to assess the percentage of responses to multiple performance ordinal variables used.

### 3.6.2 Analysis of Variance (ANOVA)

Analysis of Variance (ANOVA) is the most common approach to test differences among means. ANOVA computes a measure of the variance between the means of each group and a measure of variance within the groups. The study used ANOVA to calculate the effect of single variables on dependent variables. The level of significance was observed.

ANOVA tests the null hypothesis that the means of several populations are equal. One-way analysis variance uses single-factor, fixed-mode effects models to compare the effects of one treatment on a continuous dependent variable (Cooper and Schindler 2008). ANOVA requires assumptions that the mean groups or factor levels being studied represent populations whose outcome measures:

- Are randomly and independently obtained;
- Are normally distributed; and



- Have equal variance.

ANOVA calculates both the F-ratio and P-value. A p-value of 0.05 or less is considered significant. If the null hypothesis is true, there should be no difference between the sample means. The ratio should be close to 1. If the sample means are not equal, the numerator should manifest this difference and the F-ratio should be greater than 1. To calculate the F-ratio, the sum of the squared deviation for the numerator and denominator are divided by their respective degrees of freedom. The F-ratio determines the size of the ratio necessary to reject the null hypothesis for a particular sample size and level of significance (Cooper and Schindler 2008; Evans 2010).

### **3.6.3 Multivariate ANOVA**

Multivariate analysis of variance is a commonly used multivariate technique. MANOVA is similar to ANOVA, but with several dependent variables. Thus ANOVA tests for the difference in means between two or more groups, while MANOVA tests differences among samples of employees, customers, etc.

MANOVA could be used to test hypotheses. Instead of a univariate F-value, the multivariate F-value (Wilks  $\lambda$ ) is obtained, based on a comparison of the error variance / covariance matrix. Testing multiple dependent variables is accomplished by creating new dependent variables that maximise group differences. These artificial dependent variables are linear combinations of the measured dependent variables. The multivariate test was done in this research study to compare the means between multiple performance groups with regard to the degree of relationship between CE dimensions (innovation, proactiveness, risk taking) and entrepreneurial culture. The Wilks Lambda and confidence levels were obtained. Multivariate analysis comprises a set of techniques dedicated to the analysis of data sets with more than one variable.

Before using MANOVA to test for significant differences, the following assumptions should be met:

- The distribution must be normal.
- Linearity among all pairs of dependent variables.
- Homogeneity of variances – dependent variables exhibit equal levels of variance across the range of predictor variables.
- Homogeneity of variances and covariance – since there are multiple dependent variables, it is also required that their intercorrelations (covariance) are homogeneous across all the cells of the design.

### **3.6.4 Degree of Asymmetry (Skewness)**

Descriptive statistics tools results measure the degree of asymmetry of distribution around its mean. Histograms of sample data can take on a variety of different shapes. The distribution that has its modal value in the middle and falling away from the centre in roughly the same fashion on either side is said to be symmetrical. The asymmetrical, or skewed, distribution is concentrated on one side and the distribution tails off to the other (Evans 2010). Distributions that tail off to the right are said to be positively skewed and those that tail off to the left are said to be negatively skewed. Comparing measures of central tendency can sometimes reveal information about the shape of a distribution. In a perfectly symmetrical unimodal distribution, the mean, median and mode would all be the same. For a highly negatively skewed unimodal distribution, the mean < median < mode, while for a highly positively skewed distribution, mode < median < mean. Unimodal refers to the distribution with only one peak.

### **3.6.5 Chi-Square Test**

A common problem in business is to determine whether two categorical variables are independent. Probably the most widely used non-parametric test of significance is the Chi-Square test. It is particularly useful in tests involving nominal data, but can be used for higher scales (Cooper and Schindler 2008). The Chi-Square technique can be used to test for significant differences between the observed distribution of data among categories and the expected distribution, based on the null hypothesis. This study used the Chi-Square to test the significance between the observed nominal data and performance categories. The Chi-square statistic is the primary statistic used for computing the statistical significance of the cross-tabulation table. Chi-square is used to test for statistical independence; that is, to see if the two variables are independent.

### **3.6.6 Scheffe test**

*Post hoc* tests are designed for situations in which the researcher has already obtained a significant omnibus F-test, with a factor that consists of three or more means. Additional exploration of the differences among the means is required to provide specific information on which means are significantly different from each other. The Scheffe test procedure is perhaps the most popular of the *post hoc* procedures. It is flexible and conservative and is robust to violations of assumptions.

Scheffe's procedure corrects alpha for all pair-wise, or simple, comparison of means. It also allows for complex comparisons of means. The Scheffe test is customarily used with unequal sample sizes, although it can be used with equal sample sizes. Scheffe test is a parametric multi-comparison procedure, which

tests the hypothesis that the means of each pair are equal. In this research study, the Scheffe test was performed to compare the means between the three performance groups and their significance levels.

### **3.6.7 Performance**

As performance was measured by multiple ordinal variables and in order to analyse these variables in relation to CE dimensions, three performance categories (Poor, Moderate and High) were developed to make it more practical for presentation and analyses. A logical test was done to check the overall company performance. The percentage numbers of 1s and 2s were counted for each company - these were regarded as Poor performance. The percentage number 3s was manipulated and these were regarded as Moderate performance. The number of 4s and 5s were manipulated and these were regarded as High performance. Thereafter the following calculation was done:

- If the number of 1s and 2s had a high percentage compared to a percentage of 3s and a percentage of 4s and 5s, then the company was considered to be a Poor performing company.
- If the number of 4s and 5s had a high percentage compared to the percentage of 3s and the percentage of 1s and 2s, then the company was considered to be a High performing company.
- Companies with a high percentage of 3s, compared to the aforementioned groups of performance, were considered to be Moderate performing companies.

The difference between Poor and Moderate performance was not significant in terms of percentages. So these two groups of performance were then combined into a Poor/Moderate performance category. Throughout the data analysis in this research study, the two performance categories of High and Poor/Moderate were used. The t-test was done to compare the means of these

performance groups to investigate if they are significant. Previously, the means between three performance groups were compared to test for any significant differences.

### **3.6.8 Box & Whisker Plot**

Statistics assume that the data points are clustered around some central value. The Box-Whisker plot graphically displays the five key statistics of a data set: the minimum, first quartile, median, third quartile and maximum. These key statistics are very useful in identifying the shape of a distribution and outliers in the data. A Box-Whisker plot summarises each variable by three components:

1. Central line to indicate central tendency or location;
2. A box to indicate the variability around this central tendency;
3. Whiskers around the box to indicate the range of the variable.

The Box-Whisker plots were calculated to find the level of innovation, pro-activeness, risk taking and entrepreneurial culture in relation to the two performance groups. The aforementioned key statistics were graphically shown.

## **3.7 Limitations of the study**

The research study was limited to executives and management staff of ICT companies operating in South Africa.

From previous research, there are other variables which can impact organisational performance, such as company structure, marketing strategy, policies, operations processes, environmental dynamism, international activities and company size (Huse *et al* 2005). This study only focussed on the four

dimensions of corporate entrepreneurship: risk taking, innovation, pro-activeness and entrepreneurial culture (Miller 1983).

Performance, as a dependent variable, was measured in terms of sales growth, return on investment, return on assets, return on sales, return on equity and employment growth. The other measures, such as net profit, revenue growth, etc were not used. The results from this study should not be generalised to other ICT firms not operating in South Africa.

Multiple regression was not employed in this survey as the interval data was not used through-out (some questionnaires captured the ordinal data). Further empirical studies are recommended in this field in the future, because the report only evaluates one management level employee per firm. One could argue that the relationship between performance and entrepreneurial behaviour in a company cannot be measured or evaluated from questions asked of one employee. Future studies may include variables such as company structure, environmental heterogeneity and company strategy (Mazzarol and Reboud 2006). A longitudinal study could be done to get a better insight on how corporate entrepreneurship leads to increased company performance.

### **3.8 Validity and Reliability**

The pre-existing scales of CE used by previous researchers (Tang *et al* Li 2008; Yiu and Lau 2008; Agca *et al* 2009) were used to ensure construct validity. The measures of CE used were checked for reliability by using the estimations of Cronbach's alpha (Nunnally 1978). Factor analysis was performed to ensure that the data measured what it was designed to measure. In other words, it was used to check validity (Cooper and Schindler 2008).

The pilot test was used to check validity, reliability and possible errors. The research questions were then adjusted accordingly. Pre-testing allowed for the identification and removal of problems and/or errors. A 5-point Likert scale was used throughout to ensure consistency in the study. Multi-collinearity at, or greater than, 0.8 (meaning two independent variables are showing similar results) was tested to check for any possible inter-correlation between the independent variables, which could result in inflated probability values (Cooper and Schindler 2008 and Kreiser *et al* 2010). Inflated p-values could result in an incorrect conclusion.

### 3.9 Validity

The extent to which a particular measure is free from both systematic and random error indicates the validity of measure. The internal validity is the extent to which the measuring instruments provide adequate coverage of the topic under study. Internal validity ensures that the study is drawing the appropriate conclusions from the data at hand. Validity is essential in confirming a measurement model. Multiple components of validity can be identified:

- **Convergent validity:** if an instrument is measuring what it is supposed to measure, it should relate positively to other measures of the same construct. In other words, they should be converging on the same trait or share a high proportion of variance in common. Confirmatory factor analysis is a way to estimate the relevant amount of convergent validity among items measured.
- **Discriminant validity:** is the extent to which a variable or construct is distinct from other variables or constructs.
- **Face validity:** is established when the measurement items are conceptually consistent with the definition of a variable. This type of validity has to be established prior to any theoretical testing. Face validity

was achieved through a thorough literature review and by developing and using theoretical definitions and validated measurement instruments.

### **3.10 Reliability**

Reliability is concerned with the accuracy and precision of the measurement procedure. Cronbach's Alpha coefficient was used as a measure of internal reliability of the corporate entrepreneurship sub-scales used in the study. Cronbach's Alpha is a measure of internal reliability for multi-item summated scales (Cooper and Schindler 2008). Its values range from 0 to 1, where the higher the score, the more reliable the scale. Nunnally (1978) recommended that the minimal acceptable reliability for research should be in a range of 0.5 to 0.6, while higher values, such as 0.8, generally indicate that the measure is highly reliable.

## **CHAPTER 4: PRESENTATION OF RESULTS**

### **4.1 Introduction**

In this chapter, results of the research study are presented. Tables are included for ease of presentation and comparison of the results. A total of 114 usable responses were achieved.

This chapter includes the presentation of all data analysis that was obtained. The results of the research are structured as follows: firstly, the demographic profile of the companies used in the research is described. Thereafter the psychometric properties of the CE scales are presented, using descriptive stats e.g. measures of central tendency - means, medians, measures of variability -



standard deviations for symmetry used, skewness, and Cronbach's coefficient alpha for internal consistency reliability.

Frequency distributions were used for demographic variables, as well as for the ordinal variables, in examining company performance. Since performance was measured by multiple ordinal variables and in order to analyse these variables in relation to CE dimensions, three performance categories (Poor, Moderate and High) were developed to make it more practical for analyses. The percentage number of 1s and 2s were counted for each company and these were regarded as companies with Poor performance. The percentage number of 3s was calculated and these were regarded as companies with Moderate performance. Finally, the number of 4s and 5s were calculated and these were regarded as companies with High performance. Thereafter the following calculation was made:

- If the number of 1s and 2s had a high percentage compared to the percentage of 3s and the percentage of 4s and 5s, then the company was considered to be a Poor performing company.
- If the number of 4s and 5s had a high percentage compared to the percentage of 3s and the percentage of 1s and 2s, then the company was considered to be a High performing company.
- For companies with a high percentage of 3s compared to the aforementioned groups of performance, they were considered to be Moderate performing companies.

Thereafter, the hypotheses of the research were tested using the following procedure:

The three groups of companies categorised as Poor, Moderate and High performers were compared on the dimensions of CE via multivariate ANOVA (MANOVA) and supporting graphics. Thereafter they were compared at the univariate level via 1-way ANOVA and *post hoc* Scheffe tests, in the case of significant means differences. The Scheffe test is a parametric multi-comparison procedure, which tests the hypothesis that the means of each pair

are equal. Then t-tests were used to compare the means of the scales of CE of the High performing companies versus the companies with Moderate Poor performance. The Box and Whisker plots were used to support the t-test findings.

## 4.2 Demographic profile of companies

Company demographics were measured by asking the respondents their company size and company age (i.e. the length of time the company has been operating). The company size and tenure of the company (company age) in the industry were captured as control variables and used to describe the sample of companies in this research study.

### 4.2.1 Company Size

The company size was determined by the number of employees. The responses were categorised into four response categories. Table 1 below shows observed data from the sample results. It shows the count of company by size.

**Table 1: Count of companies by size**

	<b>Count</b>	<b>Percent</b>
Micro	4	3.5
Small	16	14.0
Medium	29	25.4
Large	65	57.0
<b>Total</b>	<b>114</b>	<b>100</b>

## 4.2.2 Company Age

Companies were also categorised according to their age, measured by the number of years they've been in business. Respondents' answers were categorised into four categories. Table 2 below shows observed data from the sample results. It is a table of company age and performance. It shows the count of companies by years in operation.

**Table 2: Count of companies by years in operation**

	Count	Percent
0-5 years	13	11.4
6-10 years	24	21.1
11-14 years	24	21.1
15 years or more	53	46.5
<b>Total</b>	<b>114</b>	<b>100</b>

## 4.3 The independent variables used in the research: metric scales

**Table 3: Summary statistics for the central tendency and variability of the metric scales of the research**

	Valid N	Mean	Median	Minimum	Maximum	Std.Dev.	Skewness
Innovation	114	4.13	4.25	2.38	5.00	0.59	-0.52
Pro-activeness	114	3.86	3.90	2.10	5.00	0.54	-0.47
Risk Taking	114	3.67	3.67	1.00	5.00	0.74	-1.08
Entrepreneurial Culture	114	3.87	3.89	1.44	5.00	0.61	-0.75

The four scales of CE were measured using a 5-point Likert-type scale, where high scores reflect high values on the construct. As the mean and median values of the scales are all greater than the scale midpoint value of 3, it appears that the mean entrepreneurship scores of the companies tend to range from somewhat higher than neutral, towards positive or high.

The reliability of the scales used in the research. The study by Barrette and Weinstein (1998) found the Cronbach's alpha of 0.84 when testing the level of CE dimensions in relation to company performance. In this study, Chronbach's alpha is not far from the Barrette and Weistein results.

The internal consistency reliabilities of the metric scales used in the research were all high, with values for Cronbach's coefficient Alpha of 0.80-0.88 (see Table 4)

**Table 4: Cronbach's Coefficient Alpha**

	<b>Cronbach's Alpha</b>
<b>Innovation</b>	<b>0.8</b>
<b>Pro-activeness</b>	<b>0.81</b>
<b>Risk taking</b>	<b>0.84</b>
<b>Entrepreneurial Culture</b>	<b>0.88</b>

#### **4.4 The dependent variables used in the research: non-metric scales**

Unlike the metric scales used to measure the independent variables of CE, the scales used to measure the dependent variable of performance are non-metric and specifically ordinal. Thus, only frequency distributions in the form of tables

and graphs are used to describe the variables in the performance levels of the companies. The construct of company performance was formed from financial and non-financial measures. Eight performance measures were used to capture the level of company performance. For each of the eight measures, the categories used to measure performance are shown in Table 5.

**Table 5**

<b>% Performance Change</b>	<b>Category</b>
Less than 0% (negative growth)	1
0-10%	2
11-40%	3
41-80%	4
81% or more	5

Since performance was measured by multiple variables and in order to analyse these variables in relation to CE dimensions, three performance categories (Poor, Moderate and High) were developed to make it more practical for presentation and analyses. A logical test was done to check the overall company performance. The percentage number of 1s and 2s was counted for each company and these were regarded as Poor performers. The percentage number of 3s was calculated and these were regarded as Moderate performers. Finally, the number of 4s and 5s was calculated and these were regarded as High performers. Thereafter, the following calculation was made:

- If the number of 1s and 2s had a high percentage compared to the percentage of 3s and the percentage of 4s and 5s, then the company was considered to be a Poor performing company.
- If the number of 4s and 5s had a high percentage compared to the percentage of 3s and the percentage of 1s and 2s, then the company was considered to be a High performing company.
- For companies with a high percentage of 3s, compared to the aforementioned groups of performance, these were considered to be Moderate performing companies.

#### 4.4.1 Sales Growth

- a) The following table 6 shows the observed data results with different performance categories and number of respondents in each category. The frequency distribution table below was constructed from the responses using the question “*To what extent has the Sales Growth changed over a 5-year period*”.

**Table 6**

	Count	Cumulative Count	Percent	Cumulative Percentage
0-10%	17	17	14.91	14.91
11-40%	48	65	42.11	57.02
41-80%	27	92	23.68	80.70
81% or more	22	114	19.30	100

#### 4.3.2 Market Value Growth

The following table shows the observed data results with different performance categories and percentage of respondents in each category. The frequency distribution table below was constructed from the responses using the question “*To what extent has the Market Growth increased compared to competitors over a 5-year period*”.

**Table 7**

	Count	Cumulative Count	Percent	Cumulative Percentage
0-10%	31	31	27.19	27.19
11-40%	41	72	35.96	63.16
41-80%	27	99	23.68	86.84
81% or more	15	114	13.16	100

### 4.3.3 Employment Rate

The following tables show the observed data results with different performance categories and percentage of respondents in each category. The frequency distribution table below was constructed from the responses using the question *“To what extent has the company employment rate increased over a 5-year period”*.

**Table 8**

	Count	Cumulative Count	Percent	Cumulative Percentage
Less than 0% (negative growth)	5	5	4.39	4.39
0-10%	27	32	23.68	28.07
11-40%	43	75	37.72	65.79
41-80%	25	100	21.93	87.72
81% or more	14	114	12.28	100

### 4.3.4 Return on Investment

The following tables show the observed data results with different performance categories and percentage of respondents in each category. The frequency distribution table below was constructed from the responses using the question *“To what extent has the Return on Investment increased over a 5-year period”*.

**Table 9**

	Count	Cumulative Count	Percent	Cumulative Percentage
0-10%	17	17	14.91	14.91
11-40%	40	57	35.09	50
41-80%	36	93	31.58	81.58
81% or more	21	114	18.42	100

### 4.3.5 Return on Equity

The following tables show the observed data results with different performance categories and percentage of respondents in each category. The frequency distribution table below was constructed from the responses using the question *“To what extent has the Return on Equity increased over a 5-year period”*.

**Table 10**

	Count	Cumulative Count	Percent	Cumulative Percentage
0-10%	20	20	17.54	17.54
11-40%	36	56	31.58	49.12
41-80%	41	97	35.96	85.09
81% or more	17	114	14.91	100

### 4.3.6 Return on Assets

The following tables show the observed data results with different performance categories and percentage of respondents in each category. The frequency distribution table below was constructed from the responses using the question *“To what extent has the Return on Assets increased over a 5-year period”*.

**Table 11**

	Count	Cumulative Count	Percent	Cumulative Percentage
Less than 0% (negative growth)	1	1	0.88	0.88
0-10%	17	18	14.91	15.79
11-40%	35	53	30.70	46.49
41-80%	44	97	38.60	85.09
81% or more	17	114	14.9122 8	100



#### 4.3.7 Return on Sales

The following tables show the observed data results with different performance categories and percentage of respondents in each category. The frequency distribution table below was constructed from the responses using the question *“To what extent has the Return on Sales increased over a 5-year period”*.

**Table 12**

	Count	Cumulative Count	Percent	Cumulative Percentage
0-10%	23	23	20.18	20.18
11-40%	41	64	35.96	56.14
41-80%	35	99	30.70	86.84
81% or more	15	114	13.16	100.00

#### 4.3.8 Operations Profit

The following tables show the observed data results with different performance categories and percentage of respondents in each category. The frequency distribution table below was constructed from the responses using the question *“To what extent have the operations profit increased over a 5-year period”*.

**Table 13**

	Count	Cumulative Count	Percent	Cumulative Percentage
Less than 0% (negative growth)	3	3	2.63	2.63
0-10%	14	17	12.28	14.91
11-40%	37	54	32.46	47.37
41-80%	35	89	30.70	78.07
81% or more	25	114	21.93	100

## 4.5 Results pertaining to the multivariate hypothesis

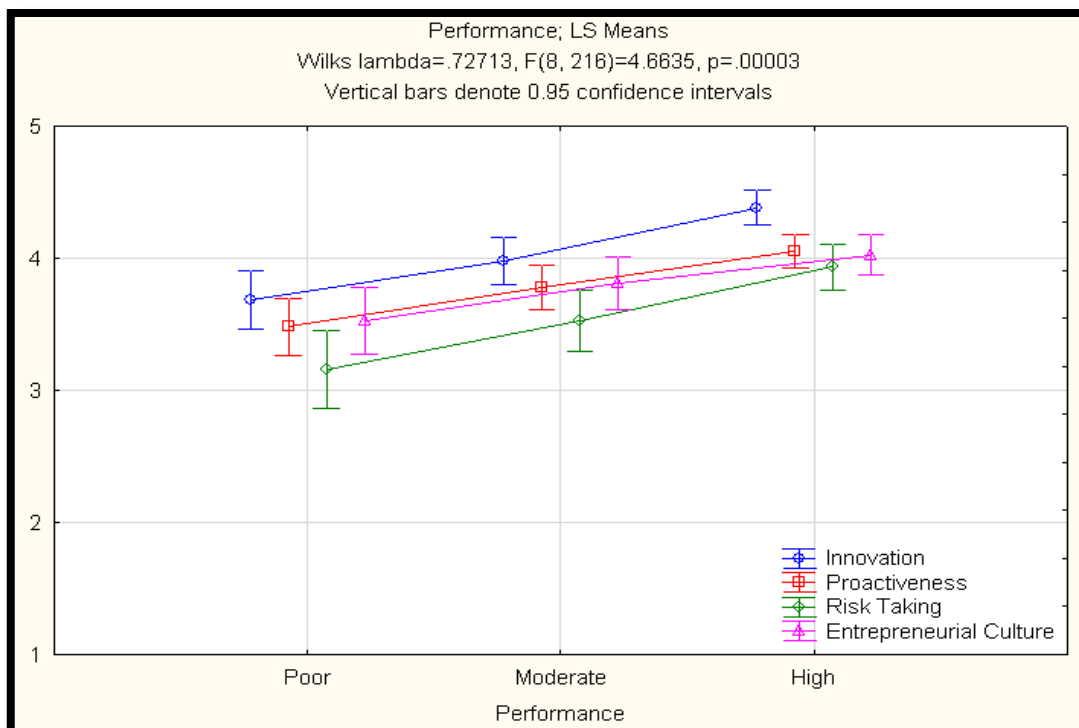
H1a: Innovation is positively related to company performance.

H1b: Pro-activeness is positively related to company performance.

H1c: Risk taking is positively related to company performance.

H1d: Entrepreneurial culture is positively related to company performance.

In order to test whether there is a relationship between the dimensions of CE and performance, company performance was used to group the 114 companies into three categories. These groups were then compared on all four CE dimensions simultaneously. This multivariate comparison is an overall comparison, at the 5% level of significance, that controls the experiment-wise compounding of the Type 1 error that would have occurred had four univariate comparisons been carried out using a 5% level of significance.



**Figure 1: Multivariate comparison of the means of the four CE dimensions across the three company performance categories**

## 4.6 Results pertaining to the univariate hypotheses

H1a: Innovation is positively related to company performance.

H1b: Pro-activeness is positively related to company performance.

H1c: Risk taking is positively related to company performance.

H1d: Entrepreneurial culture is positively related to company performance.

As the three groups of companies differed significantly in the four dimensions of CE considered simultaneously, while controlling the experiment-wise Type 1 error, it was then necessary to compare the three groups of companies at the univariate level - i.e. on each of the four CE dimensions separately. This analysis entailed four univariate analyses of variance (ANOVAs) (see Table 14). All of the four 1-way ANOVA tests are significant, showing means differences.

**Table 14**

	Analysis of Variance Marked effects are significant at $p < .05000$							
	SS Effect	df Effect	MS Effect	SS Error	df Error	MS Error	F	p
Innovation	8.71	2	4.35	30.07	111	0.27	16.08	0.00
Pro-activeness	5.39	2	2.70	27.11	111	0.24	11.04	0.00
Risk Taking	10.35	2	5.18	50.81	111	0.46	11.31	0.00
Entrepreneurial Culture	4.07	2	2.03	38.00	111	0.34	5.94	0.00

However, in order to establish the source of the significant difference between the means of the companies, a *post hoc* test of means was used. Specifically, the Scheffe test was performed to compare the means of the different performance groups relevant to each independent variable.

**Table 15**

Scheffe Test; Variable: Innovation			
Marked differences are significant at $p < .05000$			
Performance	{1} M=3.69	{2} M=3.98	{3} M=4.38
Poor {1}		0.130651	0.000004
Moderate {2}	0.130651		0.002148
High {3}	0.000004	0.002148	

**Tables 16**

Scheffe Test; Variable: Pro-activeness			
Marked differences are significant at $p < .05000$			
Performance	{1} M=3.48	{2} M=3.78	{3} M=4.05
Poor {1}		0.100443	0.000079
Moderate {2}	0.100443		0.041132
High {3}	0.000079	0.041132	

**Table 17**

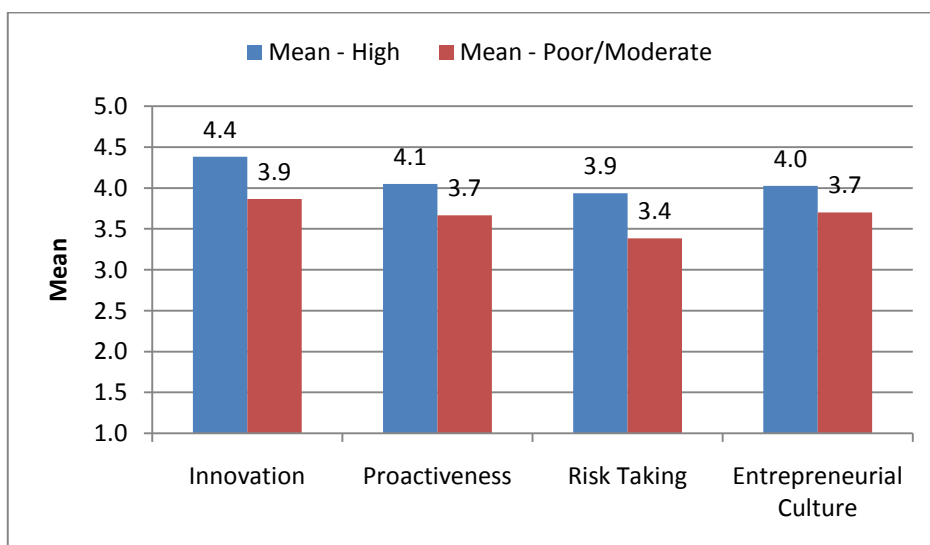
Scheffe Test; Variable: Risk taking			
Marked differences are significant at $p < .05000$			
Performance	{1} M=3.16	{2} M=3.52	{3} M=3.94
Poor {1}		0.154830	0.000086
Moderate {2}	0.154830		0.021605
High {3}	0.000086	0.021605	

**Table 18**

Scheffe Test; Variable: Entrepreneurial Culture			
Marked differences are significant at $p < .05000$			
Performance	{1} M=3.52	{2} M=3.81	{3} M=4.03
Poor {1}		0.207841	0.004353
Moderate {2}	0.207841		0.245050
High {3}	0.004353	0.245050	

The Scheffe test for entrepreneurial culture shows significant differences between the means of Poor and High performing companies, but not between Moderate and High performing companies; and Moderate and Poor performing companies (see Table 18). The Scheffe test for three dimensions of CE (innovation, pro-activeness and risk taking) shows significant differences between the means of the three CE scales between Poor and High performing companies; and between Moderate and High performing companies, but not between Moderate and High performing companies. For this reason, the companies with Poor and Moderate performances were grouped into a single category and compared against the High performance companies on each one of the four CE dimensions. This was achieved via four univariate t-tests, tested directionally to assess a positive relation between CE dimensions and performance.

All four t-tests satisfied the conditions for homogeneity of variance between the groups and, moreover, revealed significant means differences (Table 19). When the values of p are considered for directional t-tests, all four t-tests (innovation, pro-activeness and risk taking are significant at the 0.1% level of significance; and the fourth, EC, is significant at the 1% level). Moreover, the pair-wise means are consistently higher for High performance companies than for Moderate or Poor companies (Figure 2). There is, thus, support for Hypotheses 1a-1d.



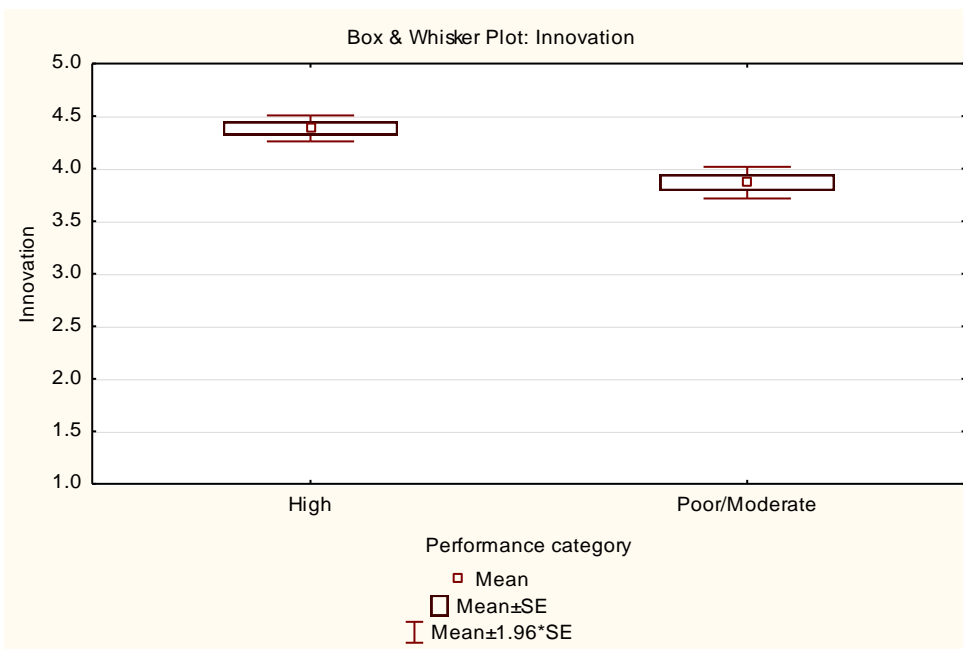
**Figure 2**

**Table 19**

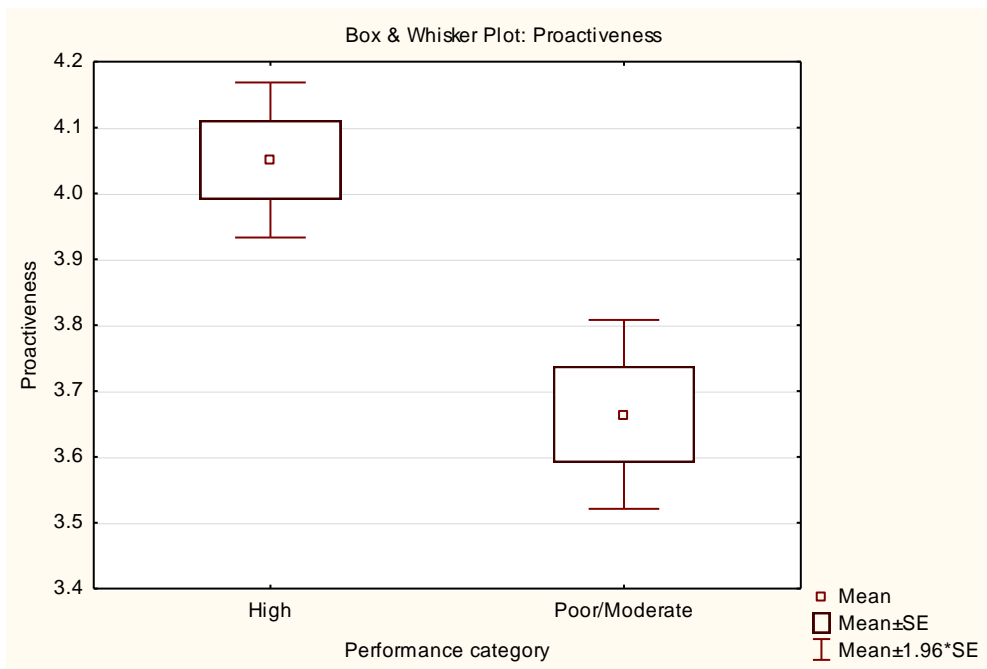
T-tests; Grouping: Performance category Group 1: High; Group 2: Poor/Moderate Hotelling T <sup>2</sup> =33.3979 F(4, 109)=8.1258 p<.00001											
	Mean - High	Mean - Poor/Moderate	t-value	df	directional p	Valid N - High	Valid N - Poor/Moderate	Std.Dev - High	Std.Dev - Poor/Moderate	F-ratio - Variances	p - Variances
Innovation	4.38	3.87	5.22	112	0	59	55	0.48	0.57	1.39	0.22
Proactiveness	4.05	3.66	4.10	112	0.00	59	55	0.46	0.54	1.38	0.23
Risk Taking	3.94	3.38	4.29	112	0.00	59	55	0.64	0.73	1.33	0.28
Entrepreneurial Culture	4.03	3.7	2.92	112	0.00	59	55	0.53	0.65	1.51	0.13

**The Box and Whisker Plot**

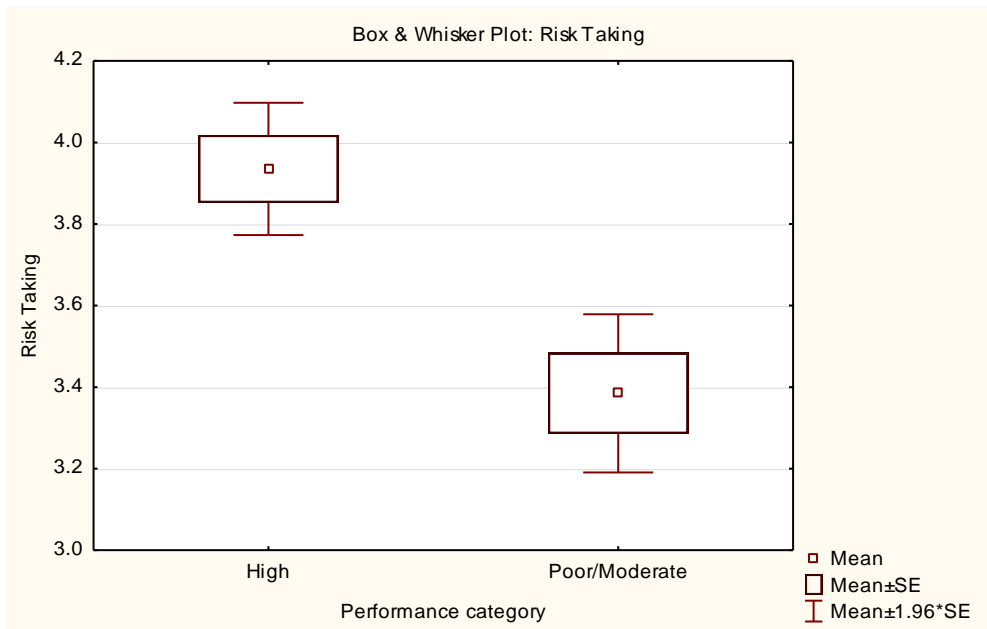
The Box and Whisker Plot was plotted to check for the range of the minimum, first quartile, median, second quartile and maximum values. The outliers were checked through this method. Box-Whisker Plots were depicted to show the level of innovation amongst the two performance groups.



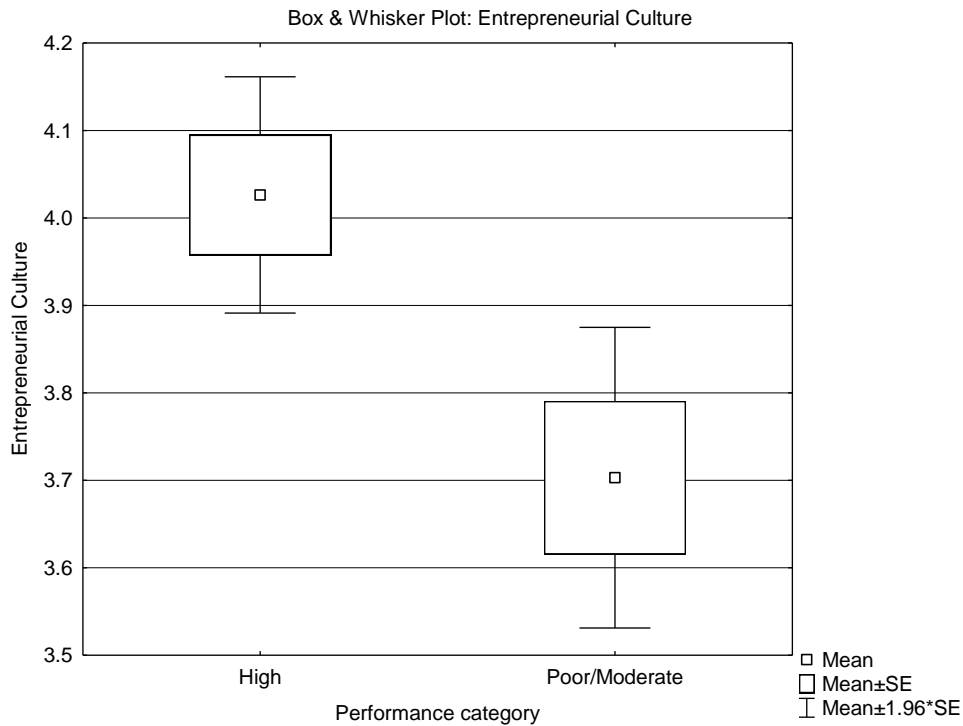
**Figure 3: Box & Whisker Plot, Innovation**



**Figure 4: Box & Whisker Plot, Pro-activeness**



**Figure 5: Box & Whisker Plot, Risk Taking**



**Figure 6: Box & Whisker Plot, Entrepreneurial Culture**

#### 4.7 Summary of the results

The presentation of results has depicted the following:

- The means between the multiple groups (ANOVA test);
- The means of multiple independent variables compare to the performance groups (Multivariate test);
- The level of CE dimension among the different performance groups (Box & Whisker Plot, t-test);
- Comparison of the means of the deferent performance group to each independent variable (Scheffe test);
- The factor analysis results.



## **CHAPTER 5: DISCUSSION OF THE RESULTS**

### **5.1 Introduction**

This section presents a discussion of the results findings of the research study undertaken. The results from the previous chapter are now discussed in detail. The research results are compared to the theoretical premise examined in the in-depth literature consulted on the subject.

The discussion of research results deals with the comparison between the theoretical premise drawn from the literature and the research findings obtained from responses. The association between different constructs is discussed and explained in detailed. The association between these variables is also compared to previous research findings. The hypothesis test and comparison to theoretical findings are discussed. The results of this study add to the growing literature on CE in a number of ways.

### **5.2 Demographic profile of companies**

The demographic profiles in the study were measured by asking the respondents their company size and company age (tenure of existence).

The **company size** in relation to company performance is as shown in Table 1. The table shows observed data from the sample results. It shows four classifications of company size. 65 of the responded companies were large and only 4 companies were micro companies, with the remaining number falling into other classifications.

The **company age** in relation to company performance is as shown in Table 2. The table shows observed data from the sample results. It shows four classifications of company age. From the observed data, it shows 53 companies which had more than 15 years of operation and about 13 companies had 5 or less number of years in existence.

### **5.3 Discussion pertaining to Performance**

As per previous discussion, company performance was measured in terms of Poor, Moderate and High categories. The frequency distribution was used to assess company performance in relation to multiple dependent variables. The tables used show the percentage of companies in a particular category.

Table 6 - sales growth shows that 42% of companies had performance sales growth between 11%-40% in a 5 year period. None of the companies observed had a negative growth.

Market value growth as shown in Table 7 had about 36% of companies which reported market growth of 11%-40%, compared to competitors, in a 5 year period. Again, none of these companies had experienced a negative market growth.

Employment rate, as shown in Table 8, had the highest percentage of companies in the category 11%-40%, which has 37.7%. This shows that most companies had an 11%-40% percentage increase in employment in the past 5 years. The reduction in employment of approximately 4.4% is noticeable.

The return on investment, as shown in Table 9, had the highest responses in category 11%-40%, which is 35%. These companies had an 11%-40% return on investment for the past 5 year period. Negative returns were not experienced by any of the companies that responded.

The return on equity, as shown in Table 10, had the highest percentage (36%) of companies in the category 41%-80%. 17.5% of responses had 0%-10% return on equity for the past 5 year period

The return on assets, as shown in Table 11, had the highest percentage (38.6%) in the category 41%-80%. These companies had experienced the return on assets which ranges between 41%-80% in the past 5 year period. About 0.9% of companies showed negative figures on return on assets.

The return on sales, as shown in Table 12, had the highest percentage (36%) of responses in category 11%-40%. These companies had experienced 11%-40% return on sales for the past 5 year period. About 13.2% of companies had experienced 81% or more in return on sales. None of the respondents reported a negative return on sales.

The operating profit, as shown in Table 13, had the highest companies (32.5%) in category 11%-40%. These companies had operating profit ranging between 11%-40% for the past 5 year period. It is also observed that about 30% of the companies reported the operating profit was between 41%-80% in the past 5 year period.

Other researchers used company growth and profitability to measure company performance, but Steffens *et al* (2009) stated that company growth does not always lead to profitability and this relationship can be negative or neutral. To them, company expansion could be costly due to the acquisition of new assets and operations resources. Rauch *et al* (2009) used sales growth and return on investments to assess business performance and the results were in line with this research finding. Wiklund (1999) mentioned that it is possible for an organisation to achieve an increase in sales growth without additional resources by rather outsourcing the sales department. In such cases, sales growth can be impacted negatively or positively, depending on the cost involved. Rutherford *et al* (2008) had used multiple performance measures, which included ROA, ROE, Profit and Sales, but they concluded that it takes about eight years for an organisation to reach profitability and about ten years to realise return on investments and equity. This could be a reason why this study didn't show

significant change in these figures in a 5 year period. Steffens *et al* (2009) found that successful firms will achieve high performance in both sales growth and profitability.

## **5.4 Multivariate Test**

The multivariate test was conducted to test the means of multiple independent variables, compared to different groups of dependent variables. All four hypotheses were tested. Figure 1 shows the results obtained after running a multivariate test. The following hypothesis was tested: **The CE dimensions are positively related to company performance.**

A significant difference between the four CE dimensions and performance groups was clear when running a multivariate test. The p value ( $p=0.00003$ ) obtained is significant at 95% confidence level. From this, the null hypothesis is rejected. This empirical test confirms that there is an association between CE dimensions and company performance. Corporate entrepreneurship dimensions such as innovation, risk taking and pro-activeness have a positive influence on company performance (Miller 1983). This is in line with what Ireland *et al* (2009) found in their study of CE.

## **5.5 Discussion pertaining to Hypothesis H1a**

### **H1a: Innovation is positively related to company performance**

The first hypothesis to be tested is to assess empirically the association between innovation and company performance. The ANOVA test was performed and the results are as shown in Table 14. When comparing the means of different groups, the results show a significant difference between the groups, rather than within the groups. The significance level of  $p<0.05$  is achieved and this allows the rejection of the null hypothesis.

The Scheffe test was performed to compare the means of different performance groups, relevant to each independent variable. Table 15 results show that there is no significant difference between Poor and Moderate performance found at  $p < 0.05$ . Hence these two were combined into a Poor/Moderate performance category.

The T-test is about comparing the means of two groups. The two performance groups are High performance and Poor/Moderate performance. Regarding innovation, as shown in Table 19, there is a significant difference between the means of these two groups. Innovation means for high performance = 4.4 and for Poor/Moderate performance = 3.9. These two performance groups are significant at  $p < 0.05$  for all variables.

The Box & Whisker plot, shown in Figure 3, was calculated to get the level of innovation in relation to the two performance groups. The significant difference between the two performance groups was clear when the mean level of innovation was examined. High performance companies, as a group, obtained the mean=4.4; lower limit=4.3 – upper limit = 4.5; 95% confidence level, while Poor/Moderate companies, as a group, obtained the mean=3.9; lower limit=3.7 – upper limit=4; 95% confidence level. Based on this result, companies with a high level of innovation are able to achieve high performance.

The observed results from the Box-Whisker Plot depicts that high innovation leads to high performance and organisations with lower innovation have Poor/Moderate performance. The aforementioned results, when testing innovation in relation to company performance, shows that this association is significant at  $p < 0.05$ . The results lead to the rejection of the null hypothesis ( $H_0$ ). So hypothesis **H1a: “Innovation is positively related to company performance”** is accepted. There was no overlapping observed on the Box & Whisker Plots and there is a clear separation between High and Poor/Moderate performing companies. This shows that these groups are significantly different. The Multivariate test also shows significance at  $p < 0.05$ , which indicates that

there is a positive association between level of innovation and company performance.

In contrast to this finding, Tang *et al* (2008) found that too much emphasis on corporate entrepreneurship could lead to poor results. In their study they found that firms with too much entrepreneurial orientation are engaging themselves in high risk taking projects, which end up inhibiting the company's growth. Most previous researchers (Zahra and Covin 1995; Lumpkin and Dess 1996; Huse *et al* 2005; Sebor, and Theerapatvong 2009; Ireland *et al* 2009) have found that innovation leads to high organisational performance. Zahra and Garvis (2000) found that innovative companies are able to perform well, even when they encounter a turbulent environment. This turbulent environment tends to trigger more demand for innovation and this, in turn, leads to high performance. Zahra and Covin (1995) found a positive relation between CE and company performance, particularly in a hostile environment. This type of environment requires flexibility and a focus on research and development by the firm in order to sustain its operation. According to Lumpkin and Dess (1996), the involvement of companies in research and development stimulates innovation and this allows the organisation to act entrepreneurially.

Innovation was found to be significantly important for the organisation to act entrepreneurially and to improve its performance. Steffens *et al* (2009) and Yiu and Lau (2008) found a positive relationship between innovation and company performance. In their study, performance was measured in terms of growth and profitability. Agca *et al* (2009) reached the same conclusion: that entrepreneurial behavior leads to improved company performance. Clark (2010) did a research study on innovation and found that companies which take innovation seriously and implement their new ideas are able to prosper and perform better. Innovative firms are those that invest heavily in innovation, research and development, as well as new product development. They have leaders with clear vision, who are able to integrate innovation and creativity into

the business strategy. These firms are said to be entrepreneurially oriented. According to Wang (2008), EO is a key ingredient for a firm's success. The t-test done in this research supports the statement that high innovation has a positive relationship with high performance.

## **5.6 Discussion pertaining to Hypothesis H1b**

### **H1b: Pro-activeness is positively related to company performance**

The 2<sup>nd</sup> hypothesis to be tested involves empirically assessing the association between pro-activeness and company performance. The ANOVA test was applied and the results are as shown in Table 14. When comparing the means of different groups, the results show significant difference between the groups, rather than within the groups. The significant level of  $p < 0.05$  is achieved and this allows the rejection of the null hypothesis.

The Scheffe test was performed to compare the means of different performance groups relevant to each independent variable. With regard to pro-activeness means - as shown in Table 16 - the significant difference between Poor and High performance; and between Moderate and High was found at 95% confidence level ( $p < 0.05$ ). There is no significant difference between Poor and Moderate performance found at  $p < 0.05$ , hence these two were combined into a Poor/Moderate performance category.

The T-test is about comparing the means of two groups. The two performance groups are High performance and Poor/Moderate performance. Regarding innovation, as shown in Table 19, there is a significant difference between the means of these two groups. Pro-activeness means for high performance = 4.1 and for Poor/Moderate performance = 3.7. These two performance groups are significantly different at  $p < 0.05$  for all variables.

The Box & Whisker Plot, shown in Figure 4, was calculated to get the level of pro-activeness in relation to the two performance groups. The significant difference between the two performance groups was clear when the means level of pro-activeness was examined. High performance companies, as a group, obtained the mean=4.1; lower limit=3.9 – upper limit = 4.2; 95% confidence level; while Poor/Moderate companies, as a group, obtained the mean=3.7; lower limit=3.5 – upper limit=3.8; 95% confidence level. Based on this result, companies with a high level of pro-activeness are able to achieve high performance.

The observed results of the Box-Whisker Plot depict that high pro-activeness leads to high performance and organisations with lower innovation have Poor/Moderate performance. The aforementioned results, when testing pro-activeness in relation to company performance, show that this association is significant at  $p < 0.05$ . The results lead to the rejection of the null hypothesis ( $H_0$ ). So hypothesis **H1b: “Pro-activeness is positively related to company performance”** is accepted. No overlapping was observed on the Box & Whisker Plots and there is a significant separation between High and Poor/Moderate performing companies. This shows that these groups are significantly different. The Multivariate test supports this hypothesis at the significant level of  $p < 0.05$ .

Previous researchers (Miller 1983; Zahra and Covin 1995; Lumpkin and Dess 1996; Yiu and Lau 2008) also found the relationship between CE and company performance to be positive. Miller (1983) stated that the firm’s ability to be a first mover gives it an opportunity to exploit future opportunities ahead of competitors. A company’s aggressiveness in pursuit of market opportunities offers the firm an opportunity to improve its performance (Rauch *et al* 2009). According to Zahra and Garvis (2000), pro-activeness by a firm leads to better company performance and this is in line with the findings from this research study. This study measured pro-activeness in terms of companies taking the



lead in introducing new technology, new market identification, proactive sales, the ability to see potential business changes and future customer demands. Kreiser and Davis (2010) found that companies that experience high levels of CE are those operating in dynamic environments. Their study results show that companies in a stable environment tend to experience low levels of CE and this could be as a result of less demand from customers. In the ICT sector, the environmental dynamism is very high due to fast-changing electronic devices, computer software, requirements for fast data throughput and overall technological changes. This type of environment forces firms to be proactive in introducing new products, so that they capture better market share and gain competitive advantage over their rivals. From the results of this study, one could define pro-activeness as the phenomenon to out-perform rivals and gain market share.

Miller (1983) defined three CE dimensions (innovation, pro-activeness, and risk-taking) as the key ingredients in performance. A company that possesses these three CE dimensions is considered to be entrepreneurial. Pro-activeness was found to be positively associated with company financial performance and the strength of this relationship tended to grow over time (Miller 1983; Zahra and Covin 1995; Zahra and Garvis 2000). The current study results corroborate prior results by Zahra and Covin, showing a positive concurrent relationship between CE and company performance.

## 5.7 Discussion pertaining to Hypothesis H1C

### **H1c: Risk taking is positively related to company performance**

The 3<sup>rd</sup> test is empirically to assess the association between innovation and company performance. The ANOVA test was used to test the means differences and the results are as shown in Table 14. When comparing the means of different groups, the results show significant difference between the groups, rather than within the groups. The significant level of  $p < 0.05$  is achieved and this allows the rejection of the null hypothesis.

The Scheffe test was performed to compare the means of different performance groups relevant to each independent variable. With regard to risk taking means, as shown in Table 17, the significant difference between Poor and High performance; and between Moderate and High was found at  $p < 0.05$ . There was no significant difference between Poor and Moderate performance found at  $p < 0.05$ . Hence these two were combined into a Poor/Moderate performance category.

The T-test is used to compare the means of two groups. The two performance groups are High performance and Poor/Moderate performance. Regarding risk taking, as shown in Table 19, there is a significant difference between the means of these two groups. Risk taking means for High performance = 3.9 and for Poor/Moderate performance = 3.4. There is a significant difference between these groups at  $p < 0.05$  for all variables.

The Box & Whisker Plot shown in Figure 5 was calculated to identify the level of risk taking in relation to the two performance groups. A significant difference between the two performance groups was clear when the means level of risk taking was examined. High performance companies, as a group, obtained the mean = 3.9; lower limit = 3.8 – upper limit = 4.1; 95% confidence level; while Poor/Moderate companies, as a group, obtained the mean=3.4; lower limit=3.2

– upper limit=3.6; 95% confidence level. Based on this result, companies with a high level of risk taking are able to achieve high performance.

The results observed from the Box-Whisker Plot depicts that high innovation leads to high performance and organisations with lower risk taking have Poor/Moderate performance. The aforementioned results, when testing risk taking in relation to company performance, shows that this association is significant at  $p < 0.05$ . The results lead to the rejection of the null hypothesis ( $H_0$ ). So hypothesis **H1c: “Risk taking is positively related to company performance”** is accepted. No overlapping was observed in the Box & Whisker Plots and there is a clear separation between High and Poor/Moderate performing companies. This shows that these groups are significantly different.

Risk taking is about taking bold action with regard to introducing new products, risk projects and other activities with uncertain returns (Wang 2008; Lumpkin *et al* 2009). Therefore, companies that embrace these elements are likely to achieve good performance. Zahra and Garvis (2000) found that the organisational support for risk taking, especially by top management, can help the organisation to prosper in future. Autonomy within the organisation makes it easy for employees to take risks in bringing new ideas and performance-enhancing projects to the table.

Risk taking allows managers to tolerate risk and implement the culture of not punishing employees who try and fail (Moreno and Casillas 2008). This was found to be a crucial element in stimulating risk taking in a firm (Zahra and Covin 1995). This finding is supported by the current study. In this study, risk taking was measured by asking the respondents questions such as: Does organisation commit significant resources to venture with uncertain returns, is business growth driven by new innovation which can bring potential business failures, does the company take bold action in venturing into unknown business territory; and rewarding individuals by taking calculated risks?

These questionnaires have led to the empirical testing of risk taking in relation to company performance and the association has been found to be positive.

Moreno and Casillas (2008) found that risk taking has a positive association with company performance and this is in line with this research study findings. Miller 1983; Wiklund 1999; Tang *et al* (2008) had achieved the same relationship in their study, when evaluating risk taking against organisational performance (both in terms of financial measures and/or non financial measures), although their study also indicated that too much risk taking could inhibit company growth capabilities.

## **5.8 Discussion pertaining to Hypothesis H1d**

### **H1d: Entrepreneurial culture is positively related to company performance**

The 4<sup>th</sup> hypothesis to be tested involves empirically assessing the association between entrepreneurial culture and company performance. The ANOVA test was applied to test the means differences and the results are as shown in Table 14. When comparing the means of different groups, the results show the significant differences between the groups, rather than within the groups. The significant level of  $p < 0.05$  is achieved and this allows the rejection of the null hypothesis.

The Scheffe test was performed to compare the means of different performance groups relevant to each independent variable. With regard to entrepreneurial culture means, as shown in Table 18, the significant difference between Poor and High performance; and between Moderate and High performance was found at  $p < 0.05$ . There was no significant difference between Poor and Moderate performance found at  $p < 0.05$ , hence these two were combined into a Poor/Moderate performance category.

The T-test is used to compare the means of two groups. The two performance groups are High performance and Poor/Moderate performance. Regarding entrepreneurial culture, as shown in Table 19, there is a significant difference between the means of these two groups. Entrepreneurial culture means for High performance=4, and for Poor/Moderate performance=3.7. These are significant at  $p < 0.05$ .

The Box & Whisker Plot, shown in Figure 6, was calculated to ascertain the level of entrepreneurial culture in relation to the two performance groups. The significant difference between the two performance groups was clear when the means level of innovation was examined. High performance companies, as a group, obtained the mean=4; lower limit=3.9 – upper limit = 4.2; 95% confidence level, while Poor/Moderate companies, as a group, obtained the mean=3.7; lower limit=3.5 – upper limit=3.9; 95% confidence level. Based on this result, companies with a high level of innovation are able to achieve high performance.

The results observed from the Box-Whisker Plot depicts that high entrepreneurial culture leads to high performance and organisations with lower entrepreneurial culture have Poor/Moderate performance. The aforementioned results, when testing entrepreneurial culture in relation to company performance, shows that this association is significant at  $p < 0.05$ . The results lead to the rejection of the null hypothesis ( $H_0$ ). So hypothesis **H1d: “Entrepreneurial culture is positively related to company performance”** is accepted. As no overlapping is observed on the Box & Whisker Plots and there is a clear separation between High and Poor/Moderate performing companies, this shows that these groups are significantly different.

Based on this research study findings, entrepreneurial culture has a positive association with company performance in the ICT industry. The culture that

allows individuals to bring new ideas and tolerates risk is a key element for sustainable business performance (Wang 2008). Entrepreneurial culture has been found to stimulate innovation, flexibility and high performance (Lumpkin and Dess 1996). Entrepreneurship should be encouraged in an organisation by creating an appropriate entrepreneurial culture and fostering an entrepreneurial climate (Venter *et al* 2008). In this way, firms are able to embrace entrepreneurial behaviour. This study has added its findings to the literature review on previous studies by proving that entrepreneurial culture has a positive association with company performance. Kreiser *et al* (2010) have concluded from their study results that there is an important link between culture and entrepreneurial activities. They found that this link leads to company growth and improves financial returns. Zahra *et al* (1999) believed that the culture that reinforces communication and sharing of knowledge within an organisation is a crucial element for success and encourages the introduction of new ideas. They found entrepreneurial culture to be an internal organisational variable that has a positive influence on company performance.

## **5.9 Conclusion**

This chapter deals with the findings of the research study. The demographic data analysis was performed and captured. During data collection, the response rate of 42.7% was achieved and the analysis was based on it.

Descriptive analysis was used to describe the data by comparing and discussing the means of the constructs. Factor analysis was used to determine whether the number of factors, and factor loadings of measured variables, conformed to what would be expected on the basis of CE theory. The CE construct showed acceptable construct reliability.

The findings strongly support the concept of corporate entrepreneurship in an organisation. The research findings confirm that the CE dimensions studied here are crucial for the organisation to enhance its performance and to enable it to sustain its degree of entrepreneurial orientation. In addition to the CE dimensions of innovation, pro-activeness and risk taking, the entrepreneurial culture has been identified as a significant element of CE. Thus, an organisation needs to embrace entrepreneurial culture in order to stimulate corporate entrepreneurial behaviour. In this study, the hypothesis test has shown a positive relationship between CE dimensions and company performance.

Finally, the findings of this research study are consistent with the findings reported by previous authors (Covin and Miles 1999; Wiklund 1999; Yiu and Lau 2008; Agca *et al* 2009; Rauch *et al* 2009).

## **CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS**

### **6.1 Introduction**

This chapter summarises the main points that emerged from the research study, which investigated the relationship between corporate entrepreneurship and company performance. The study investigated the extent to which CE dimensions affect a company's performance in the ICT sector.

### **6.2 Conclusions of the study**

In conclusion, to argue that firms must learn to act entrepreneurially is no longer a novelty and the reasons they could benefit from doing so are generally well known. The current research results suggest that companies need to focus on identifying and implementing appropriate intrapreneurship elements, which could be useful in the pursuit of CE effectiveness.

The study has investigated the relationship between CE and company performance in the South African context. A company's entrepreneurial behaviour has been emphasised as the key construct in enhancing business performance (Zahra and Covin 1995; Yiu and Lau 2008). Corporate entrepreneurship has been studied previously and most of these studies indicate that firms which embrace CE are able to realise improved performance.

The empirical study used descriptive statistics and inferential statistics to test empirically the relationship between CE dimensions and company performance. Performance was measured in terms of financial and non-financial variable



measures. The findings have indicated that all CE dimensions studied in this research have a positive relationship with company performance. The degree and level of CE employed by an organisation determines the level of performance - whether Poor, Moderate or High. The findings are in support of previous research studies by (Miller 1983, Steffens, *et al* 2009; Moreno and Casillas 2008; Lumpkin and Dess1996). This research study has not found the Curvilinear graph (Tang *et al* 2009) when testing the relationship between CE dimensions and company performance.

### **6.3 Recommendations**

The study has built a snapshot of how an entrepreneurial organisation should act and operate. There has not been significant research around the relationship between CE and company performance in the South African context. Hence it will be recommended for ICT companies in South Africa to consider introducing and implementing some CE dimensions into their businesses.

Since the ICT sector is a fast-growing one, it may be advantageous for a company first to look at efficient means of being more pro-active, innovative and able to take bold action in implementing new projects in an uncertain environment with the intention of capturing new markets. The finding of this study has shown that a high level of CE leads to high performance. The importance of the entrepreneurial culture has not really been emphasised much before, but it is clear to see that it is an important aspect for an entrepreneurial organisation. Without it, employees with a sense of innovation, risk taking and pro-activeness will experience difficulties.

## **6.4 Suggestions for further research**

Future research should attempt to capture the temporal aspects of corporate entrepreneurship by including multiple measures of the same performance (multiple indicator of company performance). Most literature supports the notion that CE is related to company performance, but the performance measures used at any given point could lead to a different conclusion.

Although the dimensions of CE which have been discussed are clear about what companies should focus on, what is less clear is what managers need to do to assure the success of their firm's entrepreneurial activity. This is an aspect that researchers should address.

A longitudinal study on CE, in relation to company performance, would be interesting as it could give a curvilinear graphical presentation. The reason for this is that very little is mentioned in current literature about the time-frame for an organisation to realise the outcome of CE. Future research could investigate the average time-frame taken by organisation before the results of CE are noticed.

Certain elements of CE (organisational structure, strategy changes, policies and procedure, etc.) require sufficient time to be more effective and efficient. Thus it would be interesting to see research done around this aspect in relation to entrepreneurial behaviour. Such research would probably have to be a longitudinal study, which would test the relationship between CE and company performance, but using entrepreneurial culture as a moderating factor.

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## APPENDIX A

### Cover letter

Dear Sir/Madam

I am conducting a research in fulfillment of academic requirements for Masters of Management at Wits Business School. The research is designed to test the degree of innovation, risk taking, and proactiveness within the organization in relation to its performance.

My research title is "Corporate Entrepreneurship and Organizational Performance in the Information and Communications Technology Industry".

A corporate entrepreneurship organization is the one which is innovative, proactive and can take risks, in order to develop a new product, process, service or business, within an established company.  
The survey will take about 5 minutes to complete.

All information captured is confidential and will be used for research purposes only.

Wits Business School, the supervisor, and the student will never sell or disclose your personal details to any third party.

To participate click the link below.

<https://www.surveymonkey.com/s.aspx>

Kind regards,

Thokozani Nkosi (Student researcher, 0848378405)

To optout click here <https://www.surveymonkey.com/optout.aspx>

Dr Jose Barreira (Supervisor, 0119071755/6)

# Research Questionnaires:

## Demographics

a) What is the company name?

Company name	
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b) What is the company size (Firm Size)?

Micro (less than 5 employees)	
Small (5 to 50 employees)	
Medium ( 51 to 200 employees)	
Large (201 or more employees)	

c) How long has the organisation been operating (Firm Age)?

0-5 years	
6-10 years	
11-15years	
15years or more	

## Performance

Performance will be evaluated using ordinary data captured with the below questionnaires.

b) To what extent has the Sales Growth changed over a 5-year period

Less than 0% (negative growth)	
0-10%	
11-40%	
41-80%	
81% or more	

- c) To what extent has the Market Value Growth increased compared to competitors over a 5-year period

Less than 0% (negative growth)	
0-10%	
11-40%	
41-80%	
81% or more	

- d) To what extent has the company Employment rate increased over a 5-year period

Less than 0% (decreased)	
0-10%	
11-40%	
41-80%	
81% or more	

- e) To what extent has the Return On Investment increased over a 5-year period

Less than 0% (Decreased)	
0-10%	
11-40%	
41-80%	
81% or more	

- f) To what extent has the Return on Equity increased over a 5-year period

Less than 0% (Decreased)	
0-10%	
11-40%	
41-80%	
81% or more	

- g) To what extent has the Return On Assets increased over a 5-year period

Less than 0% (Decreased)	
0-10%	
11-40%	
41-80%	
81% or more	

h) To what extent has the Return On Sales (ROS) increased over a 5-year period

Less than 0% (Decreased)	
0-10%	
11-40%	
41-80%	
81% or more	

i) To what extent has the Operating Profit increased over a 5-year period

Less than 0% (Decreased)	
0-10%	
11-40%	
41-80%	
81% or more	

## Innovation

To what extent do you agree or disagree with the following statements? (1 strongly disagree - 5 strongly agree)

a) Organisation has emphasis on introducing new Technology

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

b) The company has strong focus on Research and Development activities

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

c) Organisation invests heavily on new product development

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

d) Organisation is open to outside ideas that can lead to new business opportunity

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

e) Innovation and creativity are part of the business strategy

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

f) Employees are encouraged to come up with new ideas

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

g) CEO and Leaders are involved in fostering innovation

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

h) There is a reward system for creative and innovative individuals

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

### Pro-activeness

To what extent do you agree or disagree with the following statements? (1 strongly disagree - 5 strongly agree)

a) The organisation is leading in introducing new technology

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

b) Organisation is leading in new market identification

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

c) The proactive individuals in the system are being rewarded

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

d) Organisation always strives for market share through proactive sales

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

e) Organisation always strive to introduce new product or services ahead of competitors

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

f) Organisation always foresees potential environmental changes and future demands ahead of the competitors

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

g) The organisation shows a great deal of tolerance for high risk projects and rewards individuals for taking calculated risks. I would split this item into two

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

h) Employees are encouraged to take action on their new ideas

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

i) Organisation structure supports proactive division through a recognition system

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

## Risk taking

To what extent do you agree or disagree with the following statements? (1 strongly disagree - 5 strongly agree)

- a) The organisation Research and Design division has a culture of introducing new products in the complex market

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- b) Organisation commits significant resources to ventures in uncertain conditions

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- c) Business growth is driven by new Innovations which brings potential customer business failures

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- d) The organisation takes bold actions by venturing in the unknown business environments

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- e) The organisation shows a great deal of tolerance for high risk projects and rewards individuals for taking calculated risks.

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- f) The organisation strives to be the first in the market with new services while the future remains unknown.

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

## Entrepreneurial Culture

To what extent do you agree or disagree with the following statements? (1 strongly disagree - 5 strongly agree)

- a) The company has a culture that encourages new ideas

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- b) The organisational creates an environment that support entrepreneurship

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- c) The company empowers its employees to decide and act

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- d) Management support influences corporate entrepreneurship in the organisation

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- e) Organisation emphasizes accountability and commitment

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- f) Organisation encourages freedom to grow and sometimes fail (no punishment for failure)

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- g) Organisation embraces entrepreneurial behaviour

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

- h) Senior Managements in the organisation are entrepreneurial role models

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5



- i) The goal of the Entrepreneurial culture is to have entrepreneurship as the life-blood of the organisation.

Strongly disagree		Neither agree/disagree		Strongly agree
1	2	3	4	5

## APPENDIX B

### Respondents' Snapshot

<b>Recipients</b>	
Total Count:	267
Unsent/New:	0
Sent:	267
Responded (Partial/Complete):	114 (0 / 114)
Unresponded:	153
Opted Out:	0
Bounced:	1

## APPENDIX C

### Responded Companies

Company Name	Company Name	Company Name
Software AG	SS Telecoms	Ericsson Sub-Sahara Ltd
Voxtelecom	Duxbury Networking	Aircom International
SABC	Lenovo	Platinum producing organisation
Tradepage	Curasoftware	Tradepage
Samsung	Networkers MSB	Fujitsu
Gijima	XON	Deloitte
Morvest	Magix	Vodacom SA
DigiPos	Detecon International	Praxis
Alcatel-Lucent	MWEB Business	WhichVoIP.co.za
HansaWorld	Compuways	Oracle Corporation
Eaton	Ovations Technologies (Pty) Ltd	MigrationWare
BulkSMS	Sentient Communications	Global Pact Trading 3 (Pty) Ltd T/A Orange Business Services
Attachmate	Neotel	Coral Matrix
Ascent Technology	IBM SA	tappanselectrical
Excelintegration	KYOCERA MITA SA	Dimension Data
Reagola IT	Telfree	Alacrity Technologies (Pty) Ltd.
4most	Nashua Communications	EMSS
Misys	PROTEA TECHNOLOGY	GTL LIMITED
NET2BE	F5 Corporate Communications	Motorola
Bitrate	NetApp	Schuller
Aspect Software	PCB Technologies	Multichoice Technical Operations (Pty) Ltd
Xlink Communication	Huge Telecom	GlobeTOM
Talk Fusion	ZTE	The Lusito Group
Rackspace Hosting	4G Technology	Executive Business Solutions
Inala Technologies	Opentext	NSN
Puleng Technologies	Toshiba	Boniswa
T-Systems	Phoenixsoftware	Nasp
Xiotech	Stortech	Telkom
Axiz	Comztek	MTN SA
Panviva SA	AvePoint	Hyland Software, Incorporated
Digiform	Nokia	Maxxor Business Solutions
Misys	Netsurit	Biodata IT South Africa Pty Ltd
Atio Corporation	Michelangelo Technology	Transnet Feright Rail
Zensar Technologies	bSOLVe	8ta
Azuro Business Solutions	O-Tel	HUAWEI
Cell C	Aquatelecoms	R and S Consulting
Upper Edge	BITanium Consulting	Datacentrix
AlanDick Africa	Bnck	

